







NOTES

OF

LECTURES

ON THE

AMERICAN PRACTICE OF MEDICINE,

DELIVERED IN THE

AMERICAN MEDICAL COLLEGE,

AT

CINCINNATI, O.,

✓

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PREFACE.

The increasing size and number of standard text-books on the Practice of Medicine have created a necessity for Notes or Compends, to aid the student in retaining the principal facts and the physician in recalling his former investigations. This work is intended mainly for the use of the students attending the author's lectures on the Theory and Practice of Medicine. It embraces the chief propositions and facts which form the basis of the lectures;—the *text* upon which he enlarges in extemporary discourse; and which the student specially needs to remember.

In taking notes, the mind is hurried along the current of the speaker's observations—seizing sometimes upon unimportant remarks, and losing in a great measure the general spirit and scope of the important facts and doctrines inculcated. If notes be taken by the different members of the same class, they are often found so very different, as scarcely to be recognized, for the object intended, and bear a wide comparison with each other.

It is believed that these disadvantages will be considerably obviated, by furnishing the student with a copy of these Notes. He will thus be enabled to look them over in private—recall to mind the observations he heard from the speaker and observe the points which are deemed of the most importance.

As an ANALYTICAL COMPENDIUM, this work will prove highly serviceable to the practitioner of medicine. It is a faithful digest of recorded facts and opinions, derived from the standard authorities of the present time,

gleaned from every source within the reach of the author, sometimes adopting their language, at others their ideas, and again exclusively his own.

The arduous duties of the physician will seldom allow him to read a voluminous work at length, when from fifteen to seventy-five pages is occupied in the elucidation of a single subject. But while the vast responsibility of the health and life of the patient rests upon him, the practitioner can well afford to glance over from one to five pages, embracing the principal facts with which he needs to refresh his memory.

In preparing this book, the author takes pleasure in acknowledging his obligations to the excellent and elaborate works of Wood, Watson, Jones & Morrow, Eberle, Neill & Smith, and many others. Originality formed no part of the plan, for the nature of the duty required a faithful digest of recorded opinions. As such, it is hoped that it may be found of practical utility to the student and practitioner, in facilitating the acquisition of medical knowledge.

The author feels conscious that this compendium does not fully meet the idea he has formed of a *text book* of this kind; but hopes, such as it is, that it will in some degree answer the intentions for which it was written; and with this desire, he respectfully dedicates it to those students who have done, and may yet do him the honor of attending his lectures.

SYRACUSE, August, 1855.

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NOTES OF LECTURES.

PART I.

GENERAL PATHOLOGY AND THERAPEUTICS.

The Theory and Practice of Medicine is generally understood to embrace all the branches of medical science, except Midwifery and Surgery, which directly refer to the knowledge and treatment of disease, and to the preservation of health.

PATHOLOGY is that department of Practice which has for its object the *knowledge* of disease, and is divided into *general* and *special*.

GENERAL PATHOLOGY treats of what is common to diseases in general, or to many of them.

SPECIAL PATHOLOGY explains what is peculiar to individual diseases.

THERAPEUTICS is the second great department of Practice, or that which concerns the *treatment* of diseases, which may also be considered *general* or *special*, according as it teaches the principles of treatment common to many disorders, or the particular course of treatment required by each one separately.

HYGIENE is the third department, and points out the *means* of *preventing* disease and of *preserving* health.

The foregoing is the scientific arrangement of the different subjects of practical medicine, but the natural mode of teaching it has been found the most effective. Therefore a vivid

picture of each disease in all its bearings will be presented to the student, without dissecting what he will be compelled to put together again in practice. There are, however, many points in pathology and therapeutics, which are common to numerous diseases, and may with propriety be treated of in general. This will render the subsequent investigation of particular diseases more easy, and remedy the necessity of tedious repetition.

It is proposed to present in the first part of these lectures, principles and facts of extensive application, which have become well established, avoiding speculation, without stopping to discuss the many hypotheses which have risen, strutted for a time upon the stage and disappeared in rapid succession.

DISEASE, is a derangement of the organization or one or more of the functions of the body. It is any state of the living body in which the natural functions of the organs are interrupted or disturbed, either by defective or preternatural action, without a disrapture of parts by violence, which is called a *wound*.

There is much diversity in the performance of every function and in the condition of every organ within the limits of health; and a condition of things which, if continued, would constitute disease, may be so fugitive as not to merit the name; so that, both in point of degree and duration, it is often impossible to say, of any particular variation from the ordinary condition of the system, whether it is healthy or morbid. Perfect accuracy of distinction is unnecessary for practical purposes. Derangements usually pass *beyond* the boundary between health and disease before they are brought to the notice of the physician.

Division of the subject.—I shall *first* speak of the CONSTITUENT FORMS of disease, which are those derangements that, by their various combination, constitute diseases as we ordinarily see them.

2.—ETIOLOGY, which treats of the causes of disease gener-

ally considered, and forms the subordinate branch of pathological science.

3.—**SYMPTOMATOLOGY**, which points out the mode by which diseases may be recognised, one distinguished from another, and the whole course of each traced to its probable termination. It is the exploration of disease, and a branch of general pathology.

4.—**GENERAL THERAPEUTICS**, which defines and points out the general principles of treating disease.

5.—**HYGIENE** will be most conveniently treated of in connection with individual cases.

CHAPTER I.

CONSTITUENT FORMS OF DISEASE.

DISEASES, at the first glance, appear to be very numerous and diversified, but, subjected to a strict analysis, they are found to consist comparatively of a few states of derangement, by the combination of which, in various forms, in relation to number, situation and degree, their great apparent diversity is produced.

Great efforts have been made to ascertain the essential elements of disease, without very flattering success, because we have not yet learned the precise nature of healthy actions, and cannot, therefore, understand their derangements. We are however able to appreciate to a great extent the proximate ingredients of those numerous associations of morbid conditions or actions called diseases. That all diseases have their seat in the fluids or solids of the body, or both, must be admitted as a self-evident proposition.

SECTION I.

DISEASE OF THE FLUIDS.

Our pathological knowledge of the fluids of the body is still deficient, though much advanced. All of these are occasionally in an unhealthy condition, and in this state may become a source of disease. Humoral Pathology has ascribed most diseases to a morbid state of the liquids of the body, and when this system was overthrown, medical sentiment took the other extreme and with equal exclusiveness towards the solids.

That the greater number of diseases have their origin in derangements of function or structure of the organs, and others consist in a disordered condition of the fluids, is probably very near the truth, and the prevailing sentiment of distinguished pathologists.

All the fluids, except the lymph and chyle, are derived from the blood, and these enter into the constitution of it and convey thence all the deleterious noxious agents they may contain; therefore the blood may be viewed as the only fluid in which originates morbid changes, and the one to which we are to look for the seat of diseases demanding our attention. The diseased condition of the blood, it will be seen, will readily give rise to derangements in the numerous liquid secretions formed from it and in the function of the organs by which they are elaborated.

If the secretions become deranged after they are formed, as sometimes happens to the bile, urine, and some other secretions, or to some wrong influence of parts surrounding and acting upon them, the solids are clearly in the fault in such cases.

1. That the blood is frequently the source of disease, there can be no doubt, by its acting as a vehicle through which noxious agents reach the parts upon which they act. Many poisons enter the circulation through the medium of absorption, and often prove fatal. Contagious and miasmatic efflu-

vias probably reach the blood and operate on the system through this channel.

Noxious agents, thus received, act upon the blood and solids at the same time and form a double cause of disease.— Sometimes they produce merely chemical reaction with one or more of the constituents of the blood; at others they act upon its vital properties, precisely as they modify the vitality of the solids, through a similar influence.

2. The foetid contents of the intestines, if long retained, are partially taken up by the veins or absorbents, with injurious consequences to health. The putrid results of mortification, follow a similar course into the circulation and produce results much like the direct injection of decomposed organic substances. Pus and the sanies of unhealthy ulcers, sometimes find their way into, and vitiate the blood. Bile and urine, or at least some of their characteristic principles, are absorbed in cases of too long retention, and operate injuriously through the circulation.

3. A diminished elimination, or an increased secretion of certain principles, as uric acid, in persons who live chiefly on meat, and take little exercise, the quantity of this acid is so much increased, that it is not only deposited in the kidneys and bladder, but also in the joints and fibrous tissues. Its accumulations in the blood produce gouty affections. When the secretion of urine is arrested the urea remains in the blood, and imparts to it highly noxious properties. When the liver ceases to act, the coloring principle of the bile becomes redundant in the blood and passing off through the skin and kidneys, produces jaundice.

Bernard's experiments show that glucose or grape sugar is a normal product of the liver and is thence carried to the lungs where it is consumed. If generated in excess in the former organ, or insufficiently consumed in the latter, it enters the general circulation and being thrown off by the kidneys, gives rise to diabetic urine.

The sour breath and sour sweat prove the existence of an

acid in the blood, which aids other causes of disease, and to eliminate these is shown one great advantage of diaphoretic medicines in these complaints.

The blood is liable to an excess or deficiency of any of its organic elements and to the great disproportions which these bear to each other, and an excess or deficiency becomes a source of disease. The following table, (Kirkes and Paget's) will be useful in understanding the subject:

1.—CHIEF CONSTITUENTS IN 1,000 PARTS OF THE BLOOD.

Water,.....	784,00	Fibrin,.....	2,20
Red Corpuscles,.....	181,00	Extractive and fatty matters, &c,.....	6,77
Albumen of the liquor Sanguinis,.....	70,00	Saline matters,.....	6,08

2.—ALL THE CONSTITUENTS IN 1,000 PARTS OF THE BLOOD.

Water,.....	784.00			Chloride of Sodium,.....	3.60
Albumen,.....	70.00			Chloride of Potassium.....	0.36
Fibrin,.....	2.20			Tribasic phosphate of	
RED				Soda,.....	0.20
CORPUSCLES.	{ Globulin,.....	123.50		Carbonate of Soda,.....	0.84
	{ Hematin,.....	7.50	INORGANIC	Sulphate of Soda,.....	0.28
	{ Cholesterolin.....	0.08	SALTS.	Phosphate of Lime and	
	{ Cerebrin,.....	.40		Magnesia,.....	0.25
	{ Serolin,.....	.02		Oxide and phosphate of	
FATTY	{ Oleic and Margaric			Iron,.....	0.50
MATTERS.	{ Acids, Volatile and			Extractive Matter, with Salivary matter,	
	{ and odorous fatty acid,			urea, biliary coloring matter, gases, and	
	{ Fat containing			accidental substances,.....	5.47
	{ phosphorus.	0.80			

The proportion of fibrin in the above table is below the generally admitted average, which is about 3 in 1,000 parts, and must be considered as including the white corpuscles, which chemists have yet been unable to examine separately.

Arterial blood, in the proportion of its constituents differs from the venous, containing more red corpuscles and less fibrin. From the experiments of Dr. J. Beclard it appears, "that while arterial blood is identical in all parts of the system, the venous differs in different situations. Thus, the blood returning from the spleen contains less of the red corpuscles and more albumen and fibrin, than the venous blood of the general system; while in the mesenteric veins, during the last stage of digestive absorption, precisely the reverse condition occurs. As before stated, glucose or grape sugar is found as a normal constituent of the blood of the liver, and thence, in the route of the circulation to the lungs, but in no other part."

There may be no excess of albumen or fibrin, and yet an excess of the red corpuscles. In this case the blood has a higher color; it constitutes an active, plethoric condition, and predisposes to hemorrhage and fever. If the fibrin be diminished, the clot is large and soft, indicating a feeble state of vitality. Low diet induces a diminution of the fibrin and red

corpuscles and produces the phenomena of *anemia*. Excessive fatigue consumes the fibrin and produces similar effects.

The White or colorless corpuscles are sometimes in great excess, which has recently attracted attention, and shows a morbid state of the blood. Prof. Bennett, of Edinburg, first called the attention of the profession to it, and proposed the name of *leucocythemia*.

The Watery portion may be in great excess, owing to a diminished supply of solid ingredients; or may become very deficient under rapid secretion. Examples of the latter occur in malignant cholera. This loss of watery fluid causes the blood to become thick and flow with difficulty through the capillaries, the breathing, nutrition and calorification are imperfectly performed; the nervous centers languish for want of their accustomed stimulus; the heart acts feebly; the system either sinks into a state of irrecoverable collapse, or reacts slowly, with irregular sanguineous determinations. In this case the patient has a thirst equal to that which attends the highest fever.

The Salts of the blood, which are deemed essential to the change of the venous into arterial blood, usually escape with its watery portion.

4. A change in the character and relative quantities of its constituents produces disease of the blood. Nervous action is analogous to the galvanic, and can readily modify the condition of the vital fluid in the extreme vessels in the same manner that water is decomposed between the poles of the galvanic battery. The subtle principles, heat, light and electricity, exercise a powerful chemical agency in modifying the constituents of the blood within the body. In the capillary circulation, where the particles of the blood come in close contact with those of the solids, where, through cell action, molecules of the former enter into the latter, and others again separating themselves from the solids, take their place in the circulating mass, there is a play of vital affinities, capable when perverted, of producing a complete revolution in the state of the blood, and of the fixed tissues.

The blood possesses in some degree a self-developing power, converting albumen, oil, &c., into living, germinating matter, elevating its lower into its higher forms, the white into the red corpuscles; therefore any changes in its state of healthy power may produce irregularities in its physical constitution, and the proportion and character of its elements.

The most frequent cause of morbid changes of the blood is the influence of the noxious agents which are absorbed into, or otherwise enter the circulation, either from without, or from sources within the body itself. The blood loses its coagulability when putrid substances are injected into the veins, and it has a tendency to speedy decomposition. Certain poisons produce the same effect. Foreign substances may alter the blood either by chemical reaction with one or more of its constituents; by their presence originate chemical changes, upon the principle of a ferment; or they may act upon the vital properties of the living organized constituents of the blood, modifying their condition and powers, precisely as they derange the living solids through a similar influence.

Chains of morbid actions occur of which each link constitutes a disease. One part of the body may be affected with mortification, and the putrid results may be absorbed into and contaminate the blood, which may then operate upon the system at large producing a state analagous to typhus fever. The links are, 1st, mortification; 2d, diseased blood; and 3d, typhoid condition.

The solids attract more attention, because in them the alterations are more within the scope of observation. Their structure is vastly more diversified and their derangement involves a greater variety of morbid actions.

With humility we must acknowledge that the morbid states of the blood are but little understood, and not capable of being investigated in the present state of chemical knowledge; hence the condition of the blood is seldom discussed in Pathology or Therapeutics. Still we should constantly bear in mind the important part which the blood plays, and its all-pervading influence in health and disease. No physician can do

justice to his patients, or contribute his share to the advancement of medical science, unless he keeps this important subject fully in view.

SECTION II.

DISEASE OF THE SOLIDS.

All the forms of disease treated of under this head do not have their seat exclusively in the solids. It is in this situation they display their peculiar phenomena. For convenience of description they may be arranged in two divisions. The first embraces those which originate in purely mechanical or chemical causes; the second are those which result from some agent which acts upon the vital properties.

SUB-SECTION I.

DISEASES FROM MECHANICAL OR CHEMICAL CAUSES.

Only the immediate effects of these causes belong to this division. The flesh is lacerated by means of external force, or a bone is broken, and the resulting wound or fracture is a mere mechanical effect. The inflammation and fever which follow are vital phenomena and obedient to vital laws. Surgery takes most of these affections within her domain, and some of them are so connected with the vital derangements to which they give rise, that they cannot be treated separately; therefore little more remains to be done than to place them under heads corresponding to their causes, to enable the student to view the whole in regular order.

1. The effects of external violence, as contusions, wounds, fractures, and dislocations, being purely mechanical, belong to the province of the surgeon. The physician often has the consequences come under his notice and they will be treated of elsewhere.

2. *Certain chemical agents* produce immediate disorganization of parts with which they come in contact. Corrosive or caustic substances act either by so strong an affinity for one

or more of the principles entering into the composition of the part as to overcome the resistance of its vitality. Intense heat brings latent affinities existing between these principles into energetic action and thereby produces new combinations entirely subversive of organization. If caustics are diluted, or if heat be moderate, they will not act as chemical agents ; they only act as irritants or stimulants. A part may lose its life in consequence of excessive stimulation or excitement. This effect *may* be produced by such substances upon the living, and yet exhibit no action upon the dead body. Such results do not belong under this head. It embraces only the direct effects of a purely chemical influence, such as would act upon the body after death.

3. *The effects of gravitation.*—All the liquids of the body have a tendency to settle in the most dependent parts. The circulation is maintained by the vital forces, and they keep up a degree of contraction in all the living tissues. The influence of the vital forces, in health, are sufficient to counteract the force of gravitation. When overactive or depressed they produce local derangements. When the body has been a long time in one position, the fluids accumulate in the feet and legs, the veins are fatigued and become varicose.

The liquid which is every where moderately secreted by the cellular tissue, and which is usually absorbed as fast as formed, has, under like circumstances, a tendency to settle in the lower extremities, and an oedematous condition of the feet and legs results. Soldiers on long and hurried marches, and other persons constantly on their feet, are hence liable to varicose veins and swelled extremities.

When the force of the circulation and organic contractility are morbidly feeble, the results just described are very striking. If the patient is feeble the limbs will swell when he is not much on his feet. The mortification which occurs in the extremities of old people Andral ascribes to this cause. In persons of this class the forces which move the blood are too feeble to overcome the influence of gravitation ; hence

stagnation of the blood takes place, followed by death of the parts.

4. *The immediate consequences* of a mechanical obstruction to the circulation, require notice here. When the veins are obstructed, the part is congested, serum or blood is effused from the distended capillaries, and the function of the part is impaired, or wholly deranged. If the obstruction be complete, mortification follows as a necessary consequence. If an artery be obstructed the part which is supplied by it necessarily languishes for want of blood. Obstruction of the absorbents causes tumefaction, by the distension of the vessels and from the accumulation of effused fluid by deficient absorption.

The external causes are tight-lacing, a ligature around the limbs or neck, and pressure by the weight of the body, or from any extraneous source.

The internal causes are tumours, enlarged or indurated glands, aneurisms, an impregnated uterus, contractions or thickening of the coats of the vessels, and the presence of coagulated blood or fibrin within their calibre. A change in the due proportion between the cavities of the heart and from contraction or insufficiency of the valves, may produce obstruction in the course of the blood and congestion may thus arise.

Capillary obstruction, in organs supplied by large vessels conveying venous blood, causes congestion of parts from which they emanate. If the capillaries of the liver admit of the usual rapidity of circulation, the hepatic vein becomes enlarged, and congestion of the stomach and bowels occurs. If the capillaries of the lungs be obstructed, as in death from asphyxia, the pulmonary arteries, the right cavities of the heart, and the whole venous system, become congested, as shown by the livid, bloated face, projecting eyes, and dark injected surface, which gives the whole skin a mottled aspect.

5. *The excretory ducts* of glands and all passages for the discharge of secretions, when obstructed, cause a series of

morbid phenomena. The enormous mechanical distension sometimes causes a rupture of the coats, and fatal effusion into the adjacent parts. Absorption of the secretion, or some element of it, being noxious, may produce serious effects. Thus, obstruction of the duct conveying the bile into the intestines, may cause a rupture of the ducts of the gall bladder, and fatal abdominal effusion. The coloring matter of the bile, being absorbed, produces jaundice. Obstructions of the ureters are followed by noxious absorptions and bad consequences.

The causes of these obstructions may be adjacent tumours, altered coats of the tubes, spasm, or calculus, or impacted secretions in the tubes.

6. *The respiratory passages*, when obstructed, have immediate consequences follow of a disastrous character. A foreign body in the larynx or œsophagus pressing up in the trachea, causes suffocation. A stricture of the œsophagus, from pressure of a tumour upon or something inside of it, interrupts deglutition.

The alimentary canal is subject to a stoppage of its contents from stricture, intus-susception, strangulated hernia, or hardened feces.

SUB-SECTION II.

DISEASE FROM INFLUENCES UPON THE VITAL PROPERTIES.

Excitability is a property of all living tissues. A normal amount of external or internal excitation is indispensable to life and health. A *morbid* excitation may be only functional, or it may produce a change of structure. Undue functional excitation, continued, usually ends in structural lesion.*

Depression of action below the standard of health, is a morbid state. Sedative agents, or a want of healthy excitants,

* By *organic* or *structural* derangements is meant such changes as are perceptible by the senses; whatever falls below this is regarded as *functional*.

may give rise to it. This condition may be functional or organic ; change, and even death, may result in the parts affected by it.

Diseased conditions may exist independent of elevation or depression of vital action, seeming to consist in a perversion of them. Such are the tuberculous disease, melanosis, and cancer.

Article I.

IRRITATION.

Irritation is any morbid excitement of the vital actions not amounting to inflammation. Excess of food, drink, air, heat, light and electricity may give rise to it. Acrid or stimulating substances externally, irritant poisons and acrid secretions internally, as also parasitic animals, cause the same. The blood, altered by contagion, miasmata, epidemic influence or perverted mental action, is a prolific source of this morbid state.

Excitability to a due extent is a natural property. If this be excessive, a proportionate exhaustion ensues, and a recruiting repose is required. Irritation of any part may be indirectly induced, by depressing causes of temporary duration, in the reaction which results. The hand previously exposed to severe cold, becomes irritated after entering a warm apartment. Thus it is seen that the heat, only sufficient to keep up ordinary healthy action, after exposure to cold is capable of producing irritation. This principle explains many morbid phenomena.

When the circulation is restrained in one part an increase of blood flows to others, and the excessive stimuli thus afforded becomes a source of irritation. Many cases of internal irritation in parts previously weakened, are caused by the external depressing influence of cold.

The chain of sympathetic relations which binds the parts of the system to each other, often prove another source of irrita-

tion. When "one member suffers, all the members suffer with it," and more especially do those in the most intimate sympathy. Parts of a similar structure are most apt to take on sympathetic irritation. Continuity of dissimilar structure is often favorable to the spread of it, and this happens through the instrumentality of the brain and spinal marrow or ganglia. Instances of this kind are common. The stomach and heart suffer much in this way. Nausea and vomiting are frequent in disorder of the brain; and irritation of the stomach is radiated to the liver, spleen, kidneys and other organs.

The heart suffers by strong irritation of any part of the body. An irritation sympathetically produced often becomes a prominent disease, even after the one from which it originated has disappeared, which is called *metastasis*. Gout of the stomach after removal from the feet by cold applications, is in point. Firm and vigorous health presents the greatest resistance to the action of irritants; there the causes of disease finding no weak points to attack, usually leave the body unharmed. In the full, plethoric habit, the blood is so stimulating and abundant that the least extra excitement of a part is sufficient to give rise to disease, which is certain to fall upon the blood vessels, and is liable to end in inflammation, unless relieved by abundant secretion or hemorrhage. Persons of vigorous digestion, suddenly betaking themselves to sedentary habits, are very liable to inflammatory attacks.

Imperfect digestion, depletion, abstinence or any other cause which enfeebles the system, renders it equally liable to over-excitement; but the irritation takes place in a different order of parts, and shows different phenomena. It usually seats itself in the nervous system, and takes the form of neuralgia, spasm, convulsion or other nervous disease. The derangement may be functional and not structural, or inflammatory. In such habits even gout often exhibits itself, or harrassing nervous disorders; as dyspepsia, spasm of the stomach and bowels, asthma, palpitation of the heart, vertigo and neuralgia. This is called the *irritable state*, because the

system is easily excited and is apt to retain the form of irritation. Inflammation, however, is more apt to occur even in this state than in perfect health.

The effects of irritation are often displayed in organs remote from the seat of it, because one part depends upon another for its ability to perform its action in many cases. Sensibility, muscular motion, and to some extent secretion, depend upon a due supply of nervous influence from the brain, spinal marrow or ganglia. Irritation, therefore, in either of these structures, or in the course of the nerves which convey their influence, may produce great disorder in one or more of the functions alluded to, in any part of the body, even the most remote. Spasmodic, convulsive, paralytic and many derangements in the secretory functions, often depend exclusively upon disease in the nervous centers.

Functional derangement, in almost every part of the body, may have an origin in irritation of a single point in the brain, spinal marrow, nervous ganglia, or the nerves connecting these organs with the seat of the function. Hence remedies addressed to the real seat of the disease may speedily relieve it, while those confined to the apparent seat prove abortive. To the physician this idea is of vast practical importance.

Phenomena and Effects of Irritation.—Exaltation of function is the first phenomena apparent in the lower grades of irritation. If irritation is increased, the function becomes more deranged, and in the higher grades undergoes an entire change or may become entirely suppressed.

The sensations may be sharpened or blunted, the intellect elevated or deranged, muscular motion invigorated, disordered or suppressed, without evidence of vascular change. Yet in primary nervous irritation, the capillaries and elementary cells are apt to become secondarily involved. The latter can never be the seat of irritation, without a speedy participation of the nervous structure, so that all contribute to the results.

Congestion is the phenomenon always present in irritation not exclusively nervous, characterized by an increased flow

of arterial blood to the part. It is one of the first steps nature takes in persistent irritation, and is necessary to accomplish the changes which take place. The accumulated blood gives increased stimulus and also acts mechanically, often pressing upon an organ, interfering with the due performance of its functions, as in vertigo or apoplexy resulting from congestion of the brain.

Altered Sensibility is another change caused by irritation. Sight, hearing, taste, smell and touch may at first become more acute, next perverted or impaired, and for a time may be lost.

The motive power suffers similar modifications. 1st. It is increased, with more vigorous muscular action. 2d. Contraction becomes irregular and spasmodic, and, 3d. It is altogether lost, as when the heart almost instantly stops in sudden metatasis to it of gout, rheumatism or neuralgia.

Digestion, under moderate irritation, appears invigorated, but is deranged as irritation increases; hence irritants, capable of producing inflammation, in small doses provoke a temporary increase of appetite and more rapid assimilation of food.

Absorption is variously affected by irritation, usually less rapid, and is so in proportion to the amount of excitement. In atrophy, general or local, moderate stimulation causes the absorbents to act more vigorously. In hypertrophy the irritation is excessive, and hence morbid accumulations occur, for the reason that the absorbents act feebly or not at all.

The secretory organs under high irritation throw out blood little altered, either by rupture of the distended capillaries, or by pathological openings in their walls large enough to permit the passage of red corpuscles. *Hemorrhages* are frequently caused in this manner.

Specific Irritations.—The peculiarity of these is dependant upon some peculiar diathesis or predisposition of the system, which determine special effects from ordinary causes. They may more frequently depend upon a peculiarity in the nature

of the cause. Thus gouty and rheumatic affections may be excited in systems predisposed to these forms of disease, by an irritant cause; while the irritation of whooping-cough is developed, in the ordinary state of the system, by a peculiar contagious principle. Contagious diseases, so far as they consist in irritation, belong to this rank; for they are peculiar in generating a poison similar in its effects to that which produced them.

Article II.

INFLAMMATION.

Inflammation is the name applied to a peculiar morbid condition characterized by pain, swelling, and increased redness and heat. One or more of these symptoms may be absent in this state. Pain is sometimes wanting, and the increased redness and heat often disappear before the inflammatory action ceases.

Inflammation is the most important of all diseased conditions. It either forms an essential part or attends a great majority of severe diseases, and is often the chief source of danger; therefore it should be studied with peculiar care.

1. REDNESS.—This is usually the first thing noticed in inflammation. It varies in intensity and shade according to the degree of the disorder, stage, part affected, state of the system, and nature of the cause. We observe every grade from a light rose-color to deep crimson, or even purple. It may appear in points, in streaks, in minute ramifications, or be quite uniform. It is most intense in one spot, diminishing gradually as it recedes, until lost in a healthy color. Sometimes it is equal throughout and ends in an abrupt boundary. Active inflammation is attended by the brighter hues. The darker proceed from a specific cause, and are associated with a feeble action or a gangrenous tendency. Redness often disappears under pressure and returns upon its removal. We may measure the activity of the circulation in the part, by

the rapidity with which it returns after pressure by the fingers. Sometimes, in consequence of the engorged state of the capillaries and the extravasation of blood, it cannot be removed by pressure. The *color* is owing to the crowding of the red corpuscles into the vessels of the inflamed part, which exist in a larger relative proportion in the vessels, during inflammation, than is natural. It may sometimes depend upon the effusion or extravasation of the red fluid of the corpuscles. The intense redness, in certain cases, is caused by the passage of the unchanged blood from the arteries into the veins, as is proved by microscopic examination.

2. **HEAT.**—This may generally be detected by the hand, yet is most sensible to the patient. Blisters on the chest, raise the temperature only one or two degrees; while on the extremities they elevate it to six, or more. A part heated by inflammation resists freezing more than in health. Hunter found that the ear of a rabbit, inflamed by previous freezing, could not be frozen anew. The causes of increased temperature of the inflamed part are owing to the increase of blood therein, and to the increase of vital action, upon which the evolution of heat depends.

3. **PAIN.**—This is felt very soon after inflammation commences, and may precede redness. It varies in degree and character; sometimes scarcely perceptible, at others very severe; it may be sharp or lancinating, dull, heavy, or tensile; sometimes throbbing, at others pungent, prickling, burning, or merely itching, as in certain affections of the skin. Occasionally there is only soreness, without pain, unless the part be pressed upon or moved, which aggravates the suffering in all cases. It is liable to exacerbations and remissions, and sometimes even intermits. Such diversities are owing to the seat, stage, degree, and character of the inflammation, and are useful as a means of diagnosis. Parts having little or no sensibility in health, as a bone, ligament, tendon, and serous membrane, become exquisitely painful when inflamed. Sometimes the pain is felt in parts remote from the seat of disease, as in the knee from inflammation of the hip, right shoulder

from inflammation of the liver, and glans penis from inflammation of neck of bladder.

The cause of pain is some modification of the state of the nerves. It is aggravated by pressure, and often increased at each pulsation of the heart, called *pulsative* or throbbing pains. Pressure cannot be the only cause, for when applied in a greater degree in health it produces no such effect. Pain often precedes tumefaction, and is partially or wholly relieved by it. While the general sensibility is increased by inflammation, the special sensibility of each particular organ, as touch, taste, smell, hearing and sight, are impaired or suspended by it.

4. SWELLING.—The diversities of this phenomenon attending inflammation, are equal to those of the others. In the mucous membranes it is slight. In the testicles and lymphatic glands the swelling is enormous. It may be hard or soft, flat or prominent, diffused or circumscribed, and varies in amount with the degree of inflammation. It is caused, 1st, by an increased flow of blood into the capillaries; 2d, by effusion into the structure; 3d, by a new organization or growth which arises in the progress of inflammation.

5. MODIFICATION OF SECRETION.—Inflammation in its earliest stage produces an increase of normal secretion, but when established secretion is diminished, or even suspended. The inflamed skin becomes dry, as does the serous or mucous membranes. Hence the dry cough in the early stage of bronchitis. As it progresses, the secretions become more abundant than in health, partially relieving the violence of the inflammation. But the fluids thus effused are not precisely in their normal state; often acrid, irritating and excoxiating the parts over which they flow. They are albuminous, sometimes containing blood, or its coloring matter, giving to them their various shades of yellow, red or brown. They are mingled with coagulable lymph and pus, which require particular notice.

Coagulable Lymph is the English name of a substance exuded from the vessels of an inflamed part, which is liquid

when it escapes, but coagulates in a manner capable of forming living structure. This plastic liquid is shown by chemical analysis, and by its physiological properties, to be identical with the fibrin of the blood. It is sometimes extravasated free from other constituents of the blood, but is generally mixed with serous fluid, and is probably exuded from the vessels in the form of the fluid portion of the blood, deprived of red corpuscles, and possibly altered in the process of exudation. The fibrinous part concretes, while the albuminous combines with water and saline matters in the form of serum, fills and distends the interstitial spaces, or flows from exposed surfaces having a natural outlet.

Exuded fibrin organizes as soon as it comes in contact with living tissue. As it first escapes it is a transparent fluid; soon after, if examined by the microscope it is seen to contain numerous fibrils, multitudes of minute granules of different sizes, and other minute bodies, often covered by cellular envelopes, which are called *exudation corpuscles*. Coagulation depends upon the interlacing fibrils. After coagulation minute blood-vessels immediately appear, in red points at first; these lengthen, quickly inosculate, and form a continuous net-work. A connection is formed between this and the capillaries of the adjacent tissue; and, with surprising readiness, a new structure is produced possessing a more or less perfect organization. If the vitality of the effused fibrin be deficient, or in an unfavorable position, organization may not begin, or having begun prove abortive. Hence inflammation gives rise to solid products, amorphous, lifeless and those of an abnormal character.

Exuded lymph may coagulate upon inflamed surfaces in patches or extensive layers and form *false membranes*. It is sometimes extravasated in the substance of membranes, rendering them rough and opaque which were before transparent and smooth. By its coagulation upon the inner surface of the larynx it interrupts the functions of life and occasions fatal consequences. Sometimes it is useful in forming sacs of abscesses, thus preventing pus and irritating effusions from

spreading into adjacent parts, and by surrounding foreign noxious bodies with a coating, rendering them harmless. By its organization inflamed membranes are united, as the pleura, peritoneum, and synovial tissue. The divided faces of wounds, when brought together, are united by it, and spaces filled up by a new growth.

Pus is secreted in a later stage of inflammation than lymph, and if the disease ceases without its appearing at all the disorder is said to end in *resolution*. When pus appears it is mingled, at first, with serum, lymph, or other secreted fluids, and gradually increases till it is nearly pure. The production of it is called *suppuration*, and that which is produced in ordinary inflammation, in a sound state of the constitution, is called *healthy* or *laudable pus*.

Properties.—Whitish-yellow, opaque, thicker than cream, mawkish odor, and sweetish taste. It is miscible with but insoluble in water, and sinks in that fluid. It is neither alkaline nor acid, in its ordinary state, but when taken from scrofulous abscesses, it exhibits the former condition, and the latter after exposure to the air. It is slow to putrify, and is different from all other animal fluids in being coagulated by muriate of ammonia.

Mode of production.—Pus is now admitted to be produced from the exuded lymph, in consequence of failure in the attempt at organization, the exudation corpuscles degenerating into those characteristic of pus. The fibrin of effused blood, possibly, may undergo a similar change. It is a doubtful point whether pus is in all cases the product of inflammation. It is sometimes found in tissues, or collected in masses in the liver, lungs and other parts of the body, without any evidence of inflammation in those organs during life, and no ordinary appearance which that affection leaves behind it after death.

6. MODIFICATIONS OF NUTRITION, OR CHANGE OF STRUCTURE.—The nutritive process undergoes a material change, and the inflamed part is not only increased in size and density, but it often becomes the seat of new growths.

Softening.—There is usually, in acute inflammation, a diminution of cohesion, so that the texture is more easily torn than in health, and the softening increases as the disease advances, so that adhesion is sometimes lost, and after death the finger can easily be passed through the part almost without resistance. This softening often ends in a complete disorganization of a portion of the inflamed texture, which appears to break down, and is either removed by the absorbents, or dissolved in the pus, with which it seems to become identified.

Induration.—Acute inflammation rarely hardens a part. *Density* and *induration* are two states of parts. There may be greater weight and more closeness of texture in density, which is consistent with increased friability. In hardening the part is not only more dense, but it resists more firmly every mechanical agency. It is torn or cut with greater difficulty, is often sonorous when struck, and emits a peculiar sound under the knife. Induration arises by an organization of the coagulable lymph effused into the interstices of the tissue affected, and a consequent consolidation of it by a union of its surface.

Ulceration.—Interstitial absorption appears often accelerated in acute inflammation, although absorption of foreign bodies from the part affected is much less vigorous. Fat is very quickly absorbed from the inflamed part; and a solution of continuity in the tissue affected is frequently caused by this process. If this occur upon a free surface ulcers are produced, and it is called *ulcerative absorption*, or *ulceration*.—The same may happen in the interior of the tissues, preparing a receptacle for the pus and making a way to the surface for the resulting abscess, and this is *progressive absorption*.

Certain specific inflammations are peculiarly disposed to ulceration; and it is more apt to occur in debilitated or depraved habits. Pressure promotes it. If acute inflammation supervenes on chronic, it is very apt to be attended with it, as the already debilitated part cannot resist the new excitement.

Upon the skin, mucous membranes of the intestines, and

such exposed parts, ulceration usually begins at a single point and gradually spreads to its limits. Sometimes it commences at several points at once, or in succession. It is often attended with a pricking sensation, varies in different tissues and different varieties of inflammation. Occasionally it is slow, and small in extent, and again rapid and destructive, which is called *phagadenic*. In bone it constitutes *caries*.

Fatal Hemorrhages from the divided vessels, in ulceration, are prevented by the coagulable lymph thrown out by the capillaries and organized. The parts are restored, when ulceration ceases, by the process of *granulation*.

Abscesses, are collections of pus in cavities in the interior of different structures. The cavities are made either by the absorption of softened tissues, or by the breaking down and decomposition of tissue, and its solution into pus, or the two processes combined. Abscesses, when formed, usually advance towards the surface of the body, to give the pus a safe outlet. Portions of solid matter are often discharged with the pus, sometimes resembling membrane, though unorganized and consisting principally of coagulated fibrin.

A circuitous route is made by the opening of an abscess when structures difficult of absorption, as tendonous or fibrous fascia, supervene. Much mischief is thereby done by occasioning the absorption of textures which most readily yield, as cellular substance, muscle, or even bone.

An abscess occasionally opens into one of the interior cavities, and commits sad havoc by the inflammation excited in the parts with which the pus comes in contact. The *sac*, or barrier of coagulable lymph, is sometimes defective or wanting; the pus escapes into the cellular tissue, destroying and dissecting it out from others endowed with more power of resistance.

An open ulcer is often produced by the absorption of the edges of the orifice of an abscess. The only difference between an open abscess and an ulcer consists in the greater protection it enjoys from the action of the air. It presents a

similar suppurating surface and is filled up by a similar granulating process.

Gangrene and Mortification.—The partial loss of life from the effect of inflammation is called *mortification*. When all vitality ceases in a structure, it is in a state of *gangrene*, or *sphacelus*. Thus a part passes from under physiological to that of chemical laws.

The disproportion between the excitement of a part and its powers of vitality, is the immediate cause of gangrene. Certain states of the system, and peculiar diseases, are characterized by a reduction of the vital powers, and in these inflammation is apt to run into mortification. Certain specific inflammations have this tendency. The low and watery state of the blood often predisposes to this result, by not affording those supplies of material and healthy stimulus requisite to health. Obstruction of the capillaries of the inflamed part may produce gangrene.

The approach of gangrene affords very striking phenomena. The blood flows more languid in the larger vessels, and is nearly suspended in a portion of the capillaries. The color assumes a purple, red, and even a livid hue; sensibility is diminished, though a sense of burning and very severe pain immediately precede mortification; the temperature is lessened; the tumefaction is softened and flaccid, and has a doughy feel; and a dark, bloody, turbid serum is effused into the interstices of the effected tissue, or upon its surface.

Absolute gangrene is evinced by a total cessation of the circulation, so that the part will not bleed if cut; an entire loss of sensibility, a change of color to black, grayish or livid, and a loss of natural heat. When a part dies there is still inflammation around the border of the dead structure. This is caused by the excitation produced by the contact of the living with lifeless structure, which is foreign matter.—Ulceration speedily occurs and the part is thrown off in the form of what is called a *slough*. This leaves an ulcer, which presents a suppurating surface, and is filled, as other ulcers, by granulations.

Granulation and Cicatrization.—After sores are formed by ulcerative absorption when an abscess opens, and after the separation of dead parts from the living, in cases of mortification, a process of repair is commenced called *granulation*, by which the loss is supplied and the diseased parts return to health. This consists, according to Hunter, in the exudation of coagulable lymph upon the diseased surface, and its organization into small, red, shining, conical eminences, forming a new surface, which becomes the seat of a similar action, and so on, successively, till the cavity is filled up to the due level. Or, according to Macartney, though granulations may sometimes be formed out of exuded coagulable lymph, they are usually the product of deposition and organization, going on simultaneously, as in ordinary growth. That this action is essentially inflammatory is proved by the increased temperature of the parts, and vascularity of the surface upon which the granulations form, and by the production of pus, which covers and protects the new and tender growth. This is only one step in the progress of inflammation which is directed towards health.

Wounds whose surfaces cannot be brought into apposition, or if contact fail to unite by first intention, form a fourth condition for granulation. But this belongs exclusively to surgery.

Granulations, when developed, coalesce, producing constantly increasing contractions of the granulating surface; hence, when the process is completed, the extent of the surface is usually much less than at first. Two opposite granulating surfaces, brought into contact, are frequently joined by a union of the opposite granulations. This mode of union is called by surgeons, *union by the second intention*, while to that in which the divided edges coalesce through a layer of coagulable lymph, without pus or granulations, the name of *union by the first intention* has been applied.

When, in the progress of the process of reparation, the granulations have reached the level of the contiguous surface, they cease to grow, lose their granular aspect, become flat at

the top, and gradually cover themselves with a coating somewhat analagous to that which had originally existed. *Cicatrix* is the name applied to this new superficial structure, and *cicatrization* to the process producing it.

Chronic Inflammation is as diversified in its character as acute, but less apt to be attended with gangrene. There is little increase of redness or heat, the pain is less acute, the swelling is attended with hardening instead of softening of the tissues. Its protracted duration is usually owing either to the continued operation of the cause or to the existence of some peculiar diathesis, as the scrofulous, which predisposes to slow inflammation. Some writers make a grade of inflammation between acute and chronic, which they call *sub-acute*; it is a convenient term, expressive of a condition in which the morbid action exceeds but little that which occurs in the chronic form. It is of short duration, so that it cannot come under this denomination when it is excluded from the acute by the mildness of its symptoms.

Sometimes inflammation exists in such an insidious form as to give scarcely any evidence of its existence. In the interior parts of the body it may be detected by slight pain, disordered function, and moderate constitutional disturbance. Under such circumstances it is said to be *latent*, and frequently eludes attention until serious and perhaps irreparable injuries have been inflicted. According to Dr. Allison it is more frequent in the black than in the white, in the old than in the young, in the poorly fed than those of luxurious habits, and is not uncommon in convalescence from acute diseases.

Occasionally the absence of pain, and other obvious symptoms, is ascribable to the simultaneous existence of some other disease, which blunts or destroys the sensibility, as typhoid fever and paralytic affections.

7. EFFECTS OF INFLAMMATION BEYOND ITS PRIMARY SEAT.—The functions dependent upon inflamed organs must necessarily suffer. This obviously forms a fruitful source of derangement. The physician should always be guarded upon

this point, for, from secondary effects alone, will he be enabled to trace inflammation to its real seat; and the effects themselves occasionally require his aid for their relief. The vitiated secretions of an inflamed liver produce diarrhœa by irritating the mucous membrane of the bowels, and acrid urine, from inflamed kidneys, produces irritation throughout the urinary passages. Inflammation produces other important effects beyond its immediate seat.

8. FATAL EFFECTS OF INFLAMMATION.—Inflammation may prove fatal in either of six ways: 1st. It may suspend the action of the organ in which it may be situated, and the due performance of whose function may be essential to life. 2d. By deranging the condition of a particular organ it may prevent the due action of another vital organ, as where inflammation closes the rima glottidis, and by thus preventing the access of air to the lungs gives rise to fatal asphyxia. 3d. When of great violence or extent it may so concentrate the blood and vital forces in the part affected as completely to prostrate the nervous and circulating functions, and prove fatal by a species of syncope; as we see in cases of peritonitis and severe dysentery, in which the heart beats with exceeding feebleness, and the skin is cold almost from the commencement of the disease. 4th. It may elaborate products which, being absorbed or in some other way entering the circulation, may produce, by their sedative agencies, a typhoid condition and general prostration which shall end in death, as happens in inflammation of the veins when pus is carried into the general mass of the blood. 5th. Death frequently results from the debility induced by long continued or extensive suppuration, or by gangrene in the inflamed part. 6th. The constitutional excitement of inflammation, when very violent, or in a feeble constitution, may be succeeded by a fatal collapse.

Autopsy.—The appearances which inflammation leaves behind it after death will be most conveniently considered hereafter. I will here merely state that these appearances are sometimes deceptive. It has been said, by pretty high authority, that inflammation may prove fatal without leaving

the ordinary traces; the blood deserting the vessels at the point of death, or subsequently. This may be considered somewhat doubtful. The appearances closely resembling inflammation, so far as relates to congestion of the capillaries, or effusion of blood, are often presented in the bodies of those who have died a violent death, though previously in the full enjoyment of health; and much care is requisite not to confound such appearances with those of a real inflammatory origin.

Article III.

DEPRESSION.

1. NATURE.—SUBDIVISIONS, &c.—There are three conditions in which the system is below the ordinary standard of health, and which, though if slight and of very brief duration, they would scarcely be counted as morbid, are decidedly so when considerable or protracted. These three conditions are often confounded under the name of debility, or asthenia, but are essentially distinct, and sometimes require different if not opposite modes of treatment. Therefore, we should have clear conceptions of their nature to be able, practically, to distinguish them. These conditions are *depression*, *debility*, and *diminished excitability*. Action, power to act, and the susceptibility to the influence of excitant agents—which is denominated *excitability*—are different conditions or qualities of the system, and may each be reduced without any necessary reduction of the others. A morbid diminution of action is *depression*, a similar diminution of power is *debility*, and the term *diminished excitability* explains itself.

These conditions may and often do co-exist; yet they are distinct and may exist separately. Thus, depression or diminished action may result from a temporary abstraction of some wonted stimulus, or the direct restraining influence of some depressing agent, and yet the real power and excitability may be unimpaired. You may restrain a strong horse with cords, but you do not, therefore, necessarily lessen his

strength. Loosen the cords and all his energy remains. Thus, remove from the system, or a part of the system, the depressing agency, and, if it has not been long applied, the unimpaired strength will be evinced by action as energetic as that of health. The excitability, so far from being diminished, is often increased by causes producing temporary depression; as is proved by the reaction which immediately follows the depressing cause, and which is ascribable only to an augmented susceptibility, by which the ordinary healthy excitants produce more than their usual effects.

It is no less true that power may be diminished without a diminution of excitability or action. A debilitated system is often thrown into tumultuous disorder by causes which would produce no such effects in health. An individual may be reduced by poor diet, or by depletion; and we often see a panting respiration and almost convulsive action of the heart, under a degree of bodily exertion which would have scarcely disturbed these functions in the ordinary state of the system. Under similar circumstances the slightest causes produce the greatest disturbance, amounting, in the female, to violent hysteria. These results prove an increased excitability, which enables the same amount of excitant influence to produce a greater amount of effect.

Diminished excitability may exist without essentially involving the existence of debility, or depression. When a debilitated but unduly excitable heart is strengthened by suitable measures, it loses its excess of excitability as it acquires vigor; yet, by an increased application of stimulant means, it may be made to act as tumultuously as it did in its more excitable state, under a less amount of stimulation. Here then is diminished excitability, with increase of strength, and without diminution of action.

Hence the degree of depression is by no means a certain measure of diminished strength or excitability. This is often overlooked in practice, and patients with undiminished powers of system, and with perhaps an increased fund of excitability, are, in consequence of some temporary depression of

the actions of health, treated with stimulant measures, to their great detriment; and, conversely, persons greatly debilitated, but with excessive action of some important organ, dependent upon increased excitability, are no less injuriously depleted with a view to the reduction of the excitement. There is no distinction of more importance to young practitioners.

Depression may be general or partial, affecting the whole or a part of the system. General depression is not uncommon. Syncope, collapse in low forms of disease, prostration sometimes accompanying the cold stage of febrile affections, and that which results from violent injury, are examples of this nature.

In cases of partial depression, some particular region or organ may be affected, as a limb, a gland, a muscle, &c., or some system of parts, as the circulatory, absorbent, secretory, or nervous.

The depression may be nearly functional, without observable organic change, even to the loss of life; or it may be attended with derangement of the organization, as in some cases of softening, in fatty degeneration, and in gangrene.

Depression may be a mere reduction of these actions, the function being performed in the same manner, but with less vigor than in health, or may be attended with peculiar phenomena, differing entirely from the normal, and entitling the affection to the name of specific. Thus the depression from the loss of blood, is entirely different from that which attends malignant fevers.

2. CAUSES OF DEPRESSION.—The causes of depression are *direct* and *indirect*. *Direct* depends on the abstraction of the ordinary stimulus essential to healthy action, or on the operation of positively sedative agents. *Indirect* results from the operation of certain laws of the system, which determine this condition as a consequence of other antecedent conditions in the same or different parts of the body.

Article IV.

CONGESTION.

Congestion is an unhealthy accumulation of blood in the blood-vessels of any part of the body. It often has its origin and chief seat in the "capillaries; but it may extend also to the arterial and venous ramifications, and even to the larger trunks.

There are three distinct sources of congestion; namely: 1st, irritation or inflammation; 2d, depression; and 3d, some purely physical agency. When it proceeds from the first cause, it is obviously attended with the phenomena of over-excitement, and is hence called *active congestion*; and, as the accumulation takes place in the arterial ramifications, and the blood accumulated has usually the arterial character, it is termed *arterial congestion*.

1. *Active Congestion*.—This is the result of active excitement, and is a phenomenon of irritation. Perhaps this view is too limited; it may be some peculiar modification, not well understood, of the solid tissues, of which a change in the innervation probably constitutes an essential part, and which is induced by the operation of some excitant, unhealthy either in nature or degree; therefore it falls little short of irritation, which has its seat in nervous derangement.

Much accumulation of blood often takes place in healthy excitation, which is not regarded as congestion, simply because it is not morbid. We have examples of this kind in the erectile tissues, as the nipple and the penis; in organs called, after a period of repose, into renewed action, as the stomach during digestion, and the uterus during menstruation; but in no parts, no matter where situated, which have more than their ordinary duty to perform. In these instances, there is often a great distension, with increased redness and heat; but the parts return again to their usual state in a short time, without having suffered injury or inconvenience.

The process is entirely healthy. If, however, the excitation increase or persist so as to induce a derangement of function, it then amounts to irritation, and the attendant sanguineous engorgement is a real congestion.

The effects do not proceed merely from the local accumulation of blood. This is an important circumstance, but it is only a circumstance, and the judicious practitioner will look beyond it to the true pathological condition.

2. *Passive Congestion*.—This condition is very different in its origin, character, and indications of cure, from that just noticed. The blood is neither attracted nor forced, in unusual amount, into the vessels of the part, but accumulates in them because not carried forward so rapidly as it enters with the ordinary movement of the circulation. The impediment to its onward progress may, as before stated, arise from two distinct sources; namely, from a want of a due degree of that action which is necessary to its transmission; that is, from depression, or from some physical difficulty or obstruction.

The depression giving rise to congestion may be general, or confined to a particular organ. This often occurs in diseases attended with great and sudden prostration. The heart, participating in this prostration, is unable to transmit the blood so rapidly as it is conveyed towards it by the continued action of the capillaries, and by the forces which move the blood in the veins. This fluid, therefore, accumulates in the right side of the heart and the great venous trunks, and consequently in those organs with which these trunks more immediately communicate; viz., in the brain, liver, and, through this latter organ, in the abdominal viscera in general.

Instances of congestion from this cause are constantly occurring. A blow upon the head, or a severe shock, temporarily paralyzing the cerebral actions, certain mental emotions which tend to produce syncope, the chill of fevers, especially those of a typhus or malignant character, and the prostration of violent intestinal and stomachic spasm, all occasion internal congestions, consequent upon depression in the movements of the heart.

It would be a great error to ascribe the alarming phenomena which attend these affections, the feeble pulse, the cold extremities, the pale and shrunken skin, and the frequently suspended or impaired intellectual functions, to the congestion, which is a mere effect of the prostration, and ceases when the heart resumes its usual energy. Yet practitioners are common, who overlook, in a great measure, collapse of the nervous system, and the feeble movements of the heart, overwhelmed, as they both are, under some powerfully depressing influence, to search for the chief source of danger in the internal sanguineous engorgement, and who direct their remedies accordingly. Indeed, so far has this mode of doing things been carried, that affections of this kind are frequently distinguished by the title of *congestive diseases*. Thus a mere effect is prominently set forth as the characteristic and most prominent feature.

The appearances of congestion may be seen after death, although none may have been observed during life. These may occur at the moment of death, or not until some time afterwards. The contractility of the arteries appears to remain for a short period after respiration and the movements of the heart have ceased, so that these vessels empty themselves into the capillaries, where the blood is retained, and presents, upon post-mortem examination, the phenomena of congestion in various parts of the body.

From the influence of gravity the blood seeks the vessels of the most dependent parts, and, as the body commonly lies on the back, the appearances of congestion are most frequently presented in the skin and adipose tissue of the posterior parts of the body, in the meninges which cover the cerebellum, the posterior lobes of the brain and the spinal marrow, in the posterior portion of the lungs, and in those parts of the stomach and intestines which are lowermost in a supine condition.

These facts should be borne in mind, to avoid drawing false inferences in post-mortem examinations. Cadaveric extravasation of blood also frequently takes place, staining red the

parts in the vicinity of the vessels from which the blood escapes, or forming collections, more or less extensive, in the cellular and serous tissues. According to Andral it is only the serum and red globules that are thus extravasated, the fibrin remaining in the vessels.

Article V.

OF FEVER IN GENERAL.

The term *Fever* is used in two different senses,—one to denote a peculiar state of the system which may occur in any disease, and which exhibits chiefly in an increase of temperature; the other to signify certain affections, in which the increase of temperature, and other symptoms, are present; thus we speak of intermittent, remittent and typhus fever as special diseases.

In a more general sense we speak of a patient having *fever* as an accompanying symptom of a pleurisy, a pneumonia, as examples. It is important to bear this distinction in mind, in the application of the term *fever*, because in many of the so-called “fevers” the *symptom* fever may be entirely absent. This is true in the cold stage of an intermittent, and is a characteristic condition in fatal cases of adynamic or pernicious fevers.

FEVERS are of two kinds, *Idiopathic* and *Symptomatic*. These terms are employed to indicate a difference in the causes which produce them.

Idiopathic fevers are those which arise from causes which act upon the system generally. Many eminent pathologists have denied the existence of idiopathic fevers, and always referred the cause to some local irritation or inflammation. Without doubt, cases of fever do occur in which there is no appreciable local cause.

Symptomatic fevers are dependent upon local irritation, inflammation, or both, in different parts of the system at the same time. The irritation and inflammation are generally seated in the mucous tissues, and frequently in the serous.

Idiopathic fevers are often *accompanied* by inflammation,

thus the mucous membrane of the throat is inflamed in scarlatina; inflammation of the membranes of the brain, lungs or the mucous membrane of the intestines may occur with typhoid; therefore some distinguished physicians believe that typhoid fever is not idiopathic, but is symptomatic of local affections.

In an idiopathic fever the febrile symptoms occur first, and may continue some time before any local disease is manifest, if the local affection appear at all; but in symptomatic fever, the local irritation or inflammation begins first.

Some poison which gets into the blood, generally causes idiopathic fevers. The chief kinds of these fevers are intermittent, remittent, continued, and exanthematous; and each has many varieties.

Symptomatic fevers may be of an acute, inflammatory, hectic or typhoid type. An intermittent fever is sometimes symptomatic of disease in the urethra, and remittent fever of worms and accumulation of sordes in the alimentary canal.

In fevers there is more or less derangement of all the functions; the most striking phenomena being sensorial or nervous irregularity, increased heat of the skin, increased frequency of pulse, and loss of appetite.

1.—*Phenomena of Fever.*

The *forming stage* of fever consists in various premonitory *symptoms* which usually intimate its approach. These symptoms are a sense of lassitude, weariness, general aching of the body, slight chilliness, occasional headache, and loss of appetite. Several days may elapse while these symptoms continue, but sometimes they are wholly absent. They are more apt to occur in the forming stage of protracted fevers, as the typhus and typhoid.

The *chill*, or *cold stage*, is the first decided evidence of the existence of the disease. Its approach is sometimes sudden, at others gradual, and varies much in the degree of severity. The sensation of chilliness is partly nervous, though it is often

attended with a reduction of the temperature of the body. The accompanying pains are purely of a nervous character. The duration of the cold stage is exceedingly variable, from a few minutes, to hours, or even days.

The hot stage is one in which there is an actual increase of the temperature of the body, and the cold stage gradually merges into it. The temperature of the body in this stage sometimes rises as high as 107° ; attended with fullness and frequency of the pulse, it varying very much in this respect, the number of pulsations being from 90 to 150 or 160 in a minute. The face is flushed, with more or less pain of the head, and a greater or less intolerance to light and noise.

The secretions are always deranged in fever, usually diminished, and sometimes wholly suppressed.

The declining stage of fever is usually characterized by the occurrence of profuse sweating, and evacuations from the kidneys and bowels. These are termed critical discharges.

2.—Duration of Fever.

The *duration* of fever is exceedingly various. It occasionally runs through all its stages, and terminates, in a single day, when it is called an *ephemera*. It may return after an interval of different length, and then is termed an *intermittent*. A fever may partially subside, and afterwards return with its previous intensity, and then it is named a *remittent*. It may continue with little if any remission, and receives the appellation of *continued fever*.

3.—Grades of Fever.

Two very opposite *grades* of fever may occur; one inflammatory (*synocha* of Cullen), marked by an apparent increase of vital activity; the other is the *low, typhous* or adynamic, characterized by a feeble condition of the vital forces. The term *synochus* was used by Cullen to designate a fever which

was inflammatory at the commencement, and typhus towards its close.

Besides the two grades of fever above described, there are often intermediate or mixed conditions, of which it is difficult to say to which they belong. It is probable the difference depends on the state of the blood, a special derangement of which, there is every reason to believe, gives rise to the proper typhus symptoms.

The state of the vital forces on which these different grades depend, may pre-exist, or may be induced by the cause, or causes, of the fever itself. Whatever tends to increase the powers of the system predisposes to the inflammatory condition of fever; whatever diminishes these powers, to the adynamic. Thus, vigorous exercise, pure air, a cheerful mind, a good appetite, and a full diet, place the system in a condition, partly through their invigorating influence upon the solids, partly by the rich fibrinous, bright-red blood which they produce, to assume the inflammatory grade of fever, when exposed to causes capable of inducing that affection.

On the contrary, confinement, impure air, mental dejection, bad living, and the depressing influence of long continued cold, of sulphuretted hydrogen, and of other sedative agents, produce a general deterioration of health, a languor in all the vital functions, and an impoverished or depraved condition of the blood; which very generally give to fever, by whatever cause induced, the low, asthenic or typhus character.

4.—*Relation of Fever to Inflammation.*

There is no necessary connexion between fever and any other affection. It frequently runs its whole course, without positive proof, or even any strong probability, of inflammation. Yet in fevers of every type and grade, inflammation of one or more organs is very apt to occur. Its association with fever is sometimes purely accidental; as for example,

when a febrile complaint is occasioned by some peculiar cause, in a person previously affected with inflammation; or when the latter affection is produced by violence, or other extraneous cause, during the progress of fever. In all cases not purely accidental, inflammation co-existing with fever may be considered as bearing towards one of these three relations. 1st, the effect of the fever; 2d, the direct result of the same cause that produces the fever; or 3d, the cause of the fever.

It often happens that inflammation is an accompaniment of protracted fever; and this frequent association has led many pathologists to believe, that there is no such thing as an independent febrile movement, the general disorder being the effect of a local cause.

5.—*Causes of Fever.*

Any cause, of an exciting or depressing character, which is capable of producing a powerful effect, or a very general impression on the system, is probably capable of producing fever. Sympathy so connects the various organs of the system, and their mutual dependence upon each other is so great, that they may all be brought into derangement by a certain amount of disease in one, or in any number of them.

A slight affection, of small extent, is generally insufficient to rouse these sympathies, and therefore continues local. If the affection involve several organs, even though slight in degree, it may extend to the whole, and give rise to general disorder. Therefore, any cause capable of inducing irritation in any considerable number of organs, or over any considerable portion of the body, either by direct impression, or by reaction which follows depression, or by the super-excitement in certain parts resulting from depression in others, may occasion universal derangement, and consequently fever.

6.—*Theories of Fever.*

This subject has occupied much of the attention of writers on medicine in every age. The *Humoral Pathology* is the

first hypothesis which was put forth in relation to fever, and continued the longest. This ascribed it to a disordered condition of the fluids of the body. The *Nervous Theory*, first propagated by Hoffman, sought the nervous system, as the source of fever, and it is wonderful, considering the character of the symptoms, that the idea did not sooner occur to theorists.

It was reserved for the present century to dispute the position which recognizes all fever as a general disease, independent of all local lesion.

Clutterbuck published, in 1807, his "Inquiry into the Seat and Nature of Fever," who was the first author that distinctly denied the existence of idiopathic, or essential fevers, and asserted the uniform dependence of all fevers upon local inflammation. He attributed the cause of idiopathic fevers to inflammation of the brain, and proposed the name of encephalitis.

In 1816 Broussais announced the *Theory of the Local Origin* of fever. According to his doctrine *gastritis* forms the basis of every symptomatic fever. He denied the existence of essential fever, and asserted that all the forms of idiopathic fevers had their origin in inflammation of the mucous membrane of the stomach, or that, conjointly, of the stomach and bowels.

Bouillard advances another theory of the local origin of fever. He considers it as symptomatic of irritation, or general inflammation of the circulatory system; and peculiar forms of it as arising from its complication with inflammation of other structures, as the alimentary canal, and cerebro-spinal system, with an altered condition of the blood, &c.

Eclectic Theories.—Each individual has the grounds before him, and judges for himself. There is a little truth and much error in every exclusive hypothesis yet formed. A kind of composite opinion seems now to prevail, of which the old gothic humoral pathology forms a part.

7.—*Nature of Fever.*

The phenomena which are present in fever, show it to be a

general disease, affecting all the functions. The pains in the head, back and extremities, in the earlier stages, the various disordered sensations, the altered sensibility and muscular weakness, the mental debility or confusion, with many other occasional or constant phenomena, evince, beyond all possibility of doubt, derangement of the nervous system. The loss of appetite, loathing of food, diarrhœa or constipation, nausea, vomiting, &c., no less plainly indicate disordered digestion. That the circulatory function, and, as a necessary consequence, that of absorption, are deranged, is too obvious to require proof. The hurried or anxious breathing, and the often deficient arterialization of the blood, prove that respiration participates in the general disorder.

Secretion is universally affected, being generally deficient, sometimes too copious, and often quite deranged. That the nutritive function is almost suspended is proved by the length of time during which life is often sustained in fevers, without food. The calorific function, is almost invariably more active than in health, in fully developed fever. If each of the organs be taken in like manner, successively, they will be found, without exception, to be more or less disordered. We are justified, therefore, in considering fever a disease of the whole system.

Is fever a disease of itself, or is it necessarily connected with and dependent upon some local lesion? in other words, can it be *essential* or *idiopathic*, or is it always *symptomatic*? The general opinion is correct in considering it sometimes one and sometimes the other.

8—*Classification of Fevers.*

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|------------------------------|------------------------|
| 1.—Irritative Fever, | 7.—Vaccine Disease, |
| 2.—Miasmatic Fever, | 8.—Chicken Pox, |
| 3.—Yellow Fever, | 9.—Measles or Rubeola, |
| 4.—Typhoid or Enteric Fever. | 10.—Scarlatina, |
| 5.—Typhus, | 11.—Erysipelas, |
| 6.—Small-pox or Variola, | 12.—Plague. |

Of several of these there are varieties, as, for instance, we

may have inflammatory, or congestive intermittents or remittents. Some are propagated by contagion, and are hence called *contagious*. Some have the property in common that they are attended with an eruptive affection, and are denominated *eruptive*, or *exanthematous fevers*. These are, in many instances, interchangeable terms; most contagious fevers being exanthematous, and most of the exanthemata contagious. Each, however, is distinct individually.

Article VI.

DISEASE WITH PECULIAR PRODUCTS.

These are not necessarily the result of any exciting or depressing agency, whether ordinary or specific. They may be comprised in two divisions. 1st. Those in which the new product, if organized at all, has a very feeble organization, the tendency of which is rather to decay than to growth or reproduction. 2d. Those in which a new body is produced, having a life of its own, and capable of indefinite extension, if not of generation.

.—DISEASE WITH UNORGANIZED OR FEEBLY ORGANIZED PRODUCTS.

The greatest amount of diseases of this class are tuberculous, or scrofulous. Melanosis forms the remainder. These diseases are constitutional, exhibiting themselves, by their peculiar deposits, in various parts of the body, where they give rise to phenomena differing according to the locality. Their presence and effects in the several parts in which the deposit occurs, constitute distinct diseases.

TUBERCULOSIS.

SYN.—*Tuberculous or Scrofulous Disease.—Strumous.—Scrofulosis.*

In peculiar conditions of the system, a solid, extravasated matter is deposited in various parts of the body, which, from its uniformly rounded form, is called tubercle. This morbid

state of the system is called the *tuberculous diathesis*. It is nearly identical with that which precedes the development of scrofulous tumors, and which is termed *scrofulous* or *strumous diathesis*. They are so nearly alike I shall treat them as one. When this state of the system becomes obviously morbid, it is sometimes called *tuberculous*, *scrofulous*, or *strumous cachexia*.

Tubercle deposits in two forms. 1st, in small, isolated bodies. 2d, that of irregular infiltration into the tissues. In both cases, the matter at first deposited may be gray, semi-transparent, and hard ; or yellow, opaque, and rather soft.

The minute, isolated bodies are called *miliary tubercles*, or *tuberculous granulations*. At first they are about the size of a millet seed, and gradually increase to the size of a cherry stone, or larger. Many of the miliary tubercles, often aggregate together forming a considerable mass. A yellow spot often makes its appearance in the center of a tubercle, and gradually enlarges until the whole is converted into a yellow, opaque, curdy matter, so soft that it may be crushed between the fingers.

In the lungs, the infiltrated tubercle may be in large, irregular masses ; upon the serous membranes, or sheaths of the blood-vessels, as about the pia-mater, in flattened patches. These undergo the same change as the isolated tubercles, from gray to semi-transparent, or pus-like matter.

When thus formed, the tubercle excites inflammation and ulceration in the adjacent tissues, which often make a passage for its escape. A sort of cyst is sometimes left, which consists of consolidation of the surrounding tissue, and which secretes pus ; and it continues to be discharged for a long time, often mixed with curdy matter. Often a healing process at length arises, the cavity is filled, and only a cicatrix remains. This often occurs in the lymphatic glands ; and, perhaps, in the lungs ; though in them it generally goes on more rapidly than that of reparation, and often proves fatal. Sometimes the organic matter, in the tubercle, is absorbed, and an earthy or chalk-like substance is deposited in its place. This is favorable.

The time occupied in these transformations varies from a few weeks to years. Frequently the disturbance caused by the tubercles is so great as to prove fatal before they have passed their first stage. This is apt to happen, when deposited in great numbers, especially in the lungs and serous membranes.

Almost any portion of the body may be the seat of tuberculous deposit, and many parts at the same time. The lungs are most frequently affected, the lymphatic glands next, then the pleura, the intestines, the spleen, the liver, the brain itself, and the bones; and, *lastly*, the pericardium, stomach, kidneys, pancreas, &c.

All ages are liable to tuberculous disease, but the two extremes of life are most exempt. From the researches of M. Papaionie it appears, that before the end of the second year it very seldom occurs; from this period to the end of the fourth year, is more frequent; and from four to thirteen, is exceedingly frequent. After the age of puberty, there is some exemption; but the liability returns towards that of maturity, and from eighteen to thirty-five or forty, is very great. After this it lessens, and the disease is rare in old age, at least as an original affection.

This disease is not a local one, or it would not appear in so many parts of the body at the same time. It must be owing to some general depravation of the system. Persons who have it are pale, with a puffy countenance, swollen lips, which are apt to be sore and chapped in cold weather, and purulent discharges from the nostrils and ears; vesicular eruptions behind the ears, and different parts of the head and face; disagreeable exhalations from the skin, slight swelling of the glands of the neck, and enlarged tonsils; a rickety condition of the bones; a weak, excitable pulse, flabby muscles, and a general weakness after moderate exertion. These symptoms are not present in every case, but enough of them to cause the prudent physician to adopt preventive measures.

MELANOSIS.

In man, this is not a very common disease, but it occurs quite frequently in the inferior animals. It is characterized by a deposition of a peculiar black or dark colored substance, as the name indicates. This substance is deposited, either in isolated masses, in the substance of the tissues, upon the free surface of membranes, or in the liquid form, in cavities whether natural or morbid.

The melanotic matter is most frequently in isolated bodies, which vary in size from that of a hemp seed to that of an orange, and in some rare cases, have much exceeded those dimensions. These bodies, when single, are regularly spherical, but when aggregated are of irregular form. The surface is tuberculated, and sometimes resembles a string of beads, or a cluster of grapes. Their color, though dark, is of various hues, and they differ in consistence from the firmness of a lymphatic gland to that of the softness of lard. They bear no traces of organization; sometimes, not often, enclosed in cysts. Under the microscope, they appear to be unorganized granules, with cells from contiguous parts.

It is most frequently deposited in the cellular and adipose tissue, but may occur in any part of the body. More frequently in the liver or lungs than elsewhere. It has been observed in the skin, in the substance and on the surface of serous membranes, in the coats of blood-vessels, in lymphatic glands, brain, kidneys, &c.

II.—DISEASE WITH ORGANIZED PRODUCTS.

There may be three subdivisions of morbid growths. 1st. Those which have a close resemblance to healthy tissue, having no power of nutrition or reproduction, and non-malignant; as cysts and non-malignant organized tumors. 2d. Morbid growths with a peculiar organization, malignant, with tendency and power of reproduction, and a close nutritive connection with the system. All varieties of carcinoma are of this kind.

3d. Independent organized bodies, formed and existing in the system, having a distinct life of their own, depending on contiguous parts only for a nidus and material for nutrition. Such are parasitic animals, or entozoa, as worms, hydatids, &c.

ORGANIZED NON-MALIGNANT PRODUCTS.

Organized tumours without cysts, or those with them, containing various products of secretion, are of this order.

1. Cysts.—Cavities, containing liquid and solid matters are often formed, and covered with cysts. Foreign matters, whether introduced, or the consequence of morbid processes, excite inflammation and the formation of a false membrane, which isolates them. Natural cavities may be irritated into unhealthy action, and by excess of secretion, expand and acquire great size.

Some of these are closed, as the ovarian vesicles, bursæ of tendons, &c.; others are open, though not able to discharge the excess of their secretion, as the follicles of the skin, or are closed by inflammation, as the cells of areolar or adipose tissue. Obstructions at the outlet of cavities, or in tubes, caused by inflammation, calculi, hardened mucus or external pressure, the healthy secretions accumulating behind the obstruction, produce apparently encysted tumours of considerable size. Such are tumours under the tongue, as ranula, caused by obstruction of the salivary glands.

2. ORGANIZED NON-MALIGNANT TUMOURS.—Organized tumours occasionally form in almost all parts of the body, known by their bulk, nature, or consistence, from other structures. These are often caused by the effusion of coagulable lymph from inflammation, or hypertrophy by excess of nutritive action. They may occur without apparent morbid action other than their own formation. They have various structures. 1st, *the fatty*; 2d, *fibro-cellular*; 3d, *fibrous*; 4th, *recurring fibroid*; 5th, *the cartilaginous*; 6th, *the bony*; 7th, *the myeloid or fibro-plastic tumours*: 8th, *the glandular*, and 9th, *the elastic or vascular*.

We have no knowledge of the origin of these tumours. There is a perversion of the nucleated or germ-cells, which retain their extending power, and impart their nutritive properties to all cells arising from them.

Malignant Growths.

CARCINOMA, OR CANCER.

These peculiar morbid structures differ from the tuberculous disease in that they are possessed of no reparative action. They have the power of transferring all neighboring tissues to their own nature, and their tendency is always to destroy life. They may remain dormant in the system for years, but when aroused into action from any cause, their progress is rapid and results in death. The term cancer was formerly restricted to the designation of a variety of scirrhus; but, of late, pathologists comprehend by this term all varieties of malignant growths.

Anatomical Appearances.—The tumours vary in number and size; they may be few or many, large or small, from the size of a millet seed to that of a man's head. In shape they differ much in the different structures they occupy; pear shaped on the skin; in layers or patches on membranous tissue, and ramified when they occupy the vessels. In consistence they may be hard or soft, gelatinous or liquid. The color is whitish, sometimes inclining to yellow.

A pale yellow liquid called "the cancerous juice" exudes from these tumours when subjected to pressure. Under the microscope their ingredients are apparent: 1st, a fibrous tissue containing, 2d, a viscous liquid within its interstices, and 3d, peculiar cells in various stages of development. The proportion of these elements are very various in different forms of carcinoma. Blood-vessels are observed in all species of cancer, abundant in some, scanty in others, and sometimes in clusters.

When carcinoma degenerates, the cells variously change. Sometimes the walls thicken and the nuclei are converted into

transparent vesicles; others imbibe, the cell-wall distends, laminates, and the interior diffuse. A third presents granular and fatty infiltration, showing compound granular corpuscles. The fourth shrink and dry, and the fifth are changed into a mass of molecular granules and is the lowest stage of degradation. These forms generally occupy only a part of the tumour, while unchanged cells occupy the remainder.

Chemistry furnishes no satisfactory results in cancer. Water, albumen, fibrin, gelatin, fatty matter, iron and various salts, have been detected. The essential cancerous structure is not known.

Origin and Progress.—Cancer begins in a small spot, or in several nearly contiguous, which coalesce. It spreads by degrees, destroying the tissue, forming a tumour, varied in size, shape, and consistence. The veins are filled with cancerous matter or coagulated blood, hence the varicose state of the superficial veins often seen in scirrhus.

It travels along the absorbents, hence the glands of the axillæ are usually affected in cancer of the breast, and those of the groin in cancer of the testicle. It may propagate by sympathetic irritation, upon a cancerous predisposition, or more probably by the transplanting of cancerous germs through the absorbent vessels. It often extends to various distant organs, as in cases where the lungs suffer in external cancer. It may be the result of a cancerous diathesis.

Advancing cancer has a tendency to soften and ulcerate; thus the hard kinds occasionally are converted into the soft, and the soft, become softer; both, in the end, sometimes assume the consistence of cream. The softening may begin in any part of the tumour, but usually with increased redness, and ends in ulceration.

The ulcer is ragged, and has inverted or everted edges, often deep excavations, sanious, offensive discharges, and often bleeds and sloughs. Gangrene, from obstruction of the vessels, results, and enormous sloughs occur in the softer kinds, sometimes carrying off the whole tumor, and saving the life of the patient. Cancer may inflame and suppurate, though rarely.

Seat.—This may be in almost any part or tissue of the body. Certain parts are more liable, as the mamma, uterus, stomach, and testes. It may occur in the lungs, liver, rectum, kidney, œsophagus, brain, eye, tongue, lips, and lymphatic glands. Of the tissues, the cellular is most frequently the seat; often the skin and mucous membranes, and occasionally the muscular, vascular and bony structures. It seldom attacks the fibrous or cartilaginous. The veins are readily seized, yet the arteries resist it considerably. Sometimes only a part, at others the whole organ, or several of them are effected at the same time. It is more frequent in females than males. The former especially at the “turn of life,” the latter, between 30 and 40.

Symptoms and Effects.—Pain, sharp and lancinating at some period, though irregular. Internally, the disease has far advanced before producing much pain. The pain is generally intermitting, sudden and acute, occasionally even excruciating, shooting through the part and then ceasing. The patient suffers most when the adjacent parts are ulcerating, and then the pain may be almost constant.

Cancer often begins in apparent health, but when the local affection involves the whole system, there is a peculiar pale, sallow and wan appearance of the countenance, with expression of sadness. Deranged digestion, general weakness and emaciation are common. Considerable fullness of habit sometimes obtains until the close.

The patient may sink from general irritation, excessive discharge, sloughing, &c.; more frequently, however, death ensues from suppression of the function of some vital organ, as the brain, lungs, &c. Erosion of large blood-vessels, closure of certain portions of the digestive tube, as œsophagus, pylorus, intestines, &c., may produce like results. Compression or obliteration of blood-vessels may occasion congestion and dropsy.

The blood contains less red corpuscles, and in the last stages, or after death, are found soft coagula, very different

from those in health. The muscles and bones are soft and fragile, and the viscera very bloodless.

The *duration* is from 3 months to 20 years. Cancer of the viscera, as the stomach and bowels, are from 13 to 18 months, while that of the mamma has a mean duration of about 42 months. Soft cancers are more speedily fatal.

Diagnosis.—The lancinating pain, obstinacy of the disease, cachetic complexion, the great size and diversity of form of the cells of the tumour, are nearly the only peculiar distinguishing symptoms. Other morbid formations, nearly allied to cancer, called *canceroid*, are found in the skin and mucous membrane. They are excessive productions of epidermis, or epithelium, and like cancer, have a tendency to extend, ulcerate and destroy life. These do not infect the system, and if removed, are not apt to return.

Nature and Mode of Development.—The cancer matter originally exudes from the capillaries in a liquid form, a minute particle of which, when deposited on the surface of living tissue, takes on, through its own vital force, the cancerous organization. Invisible cancerous germs, may exist in the blood, and being thrown out in the fibrin, develop into cells and fibers. The cancer cell, once formed, seems to have power of self-propagation, requiring only nutriment from the blood.

Varieties of Carcinoma.—These may be arranged in three groups, each characterized by certain distinctive qualities of consistence and growth. 1st, *scirrhus*; 2d, *medullary carcinoma*; and 3d, *gelatinous cancer*.

1. *Scirrhus.*—*Carcinomatous Sarcoma (Abernethy).*—*Stone Cancer.*—This is hard, whitish-gray, or blueish-white, semi-transparent substance, showing when cut, a shining surface, and frequently intersected by opaque, white or pale straw-colored bands of fibrous or condensed cellular tissue. It is sometimes lobulated like the pancreas, and hence has been called *pancreatic sarcoma* by Abernethy. Occasionally it resembles boiled pork, whence the name *lardaceous tissue*, by French writers. The fibrous tissue is in excess in this kind.

Scirrhus is dense, hard, with a stone-like feel, and gives a peculiar creaking sound when cut. The pain from it is lancinating, has few blood-vessels, growth slow, seldom becomes larger than an orange, is apt to adhere to adjacent parts, and it is often solitary.

This is frequent in the breast, and not apt to attack other parts. It seldom occurs before the age of puberty, and is most common in advanced ages.

2. *Medullary Carcinoma*.—*Medullary Sarcoma*.—*Encephaloid Disease*.—*Fungus Hæmatodes*.—*Soft Cancer*.—This is composed of a dull-white, opaque, softish matter, resembling brain, and lobulated. Its blood-vessels are numerous, and very delicate; they easily rupture, and produce hemorrhage, giving the tissue a livid hue. This, and its tendency to sprout rapidly when opened, gave rise to the name of *fungus hæmatodes*.

Unlike scirrhus, it is soft, spongy, white or spongy in appearance, and of rapid growth. The veins and absorbents are very frequently its seat, but no part of the body is exempt. The young are most liable to this condition.

3. *Gelatinous Carcinoma*.—*Gum Cancer*.—This form rarely occupies more than one organ at a time, usually at the pyloric orifice of the stomach, in the omentum, and intestines; less frequently in the testes, mamma, &c. It consists of a yellowish transparent gelatinous matter, which when separated from the tissues is soft, but moderately firm as found in the tumour. This variety rarely occurs in youth.

Cause of Carcinoma.—Though but little is known of the cause of cancer, it in many instances appears to be hereditary. Local injuries have been known to call a pre-existing tendency to the disease into action.

CHAPTER II.

CAUSES OF DISEASE.—ETIOLOGY.

Anything which is capable of deranging the functions or structure of the body, may be regarded as a cause of disease. The causes may be divided into *internal* and *external*, *general* and *local*, *principal* and *accessory*, *mechanical*, or chemical, and *physiological*, *positive* and *negative*, *proximate* and *remote*, *predisposing* and *exciting*, or occasional, &c. The subdivisions are *occult*, *specific*, *determining*, &c. The most of these terms explain themselves.

All the above causes may be embraced under five heads. 1st. Perversion of the ordinary external influences necessary to health. 2d. Excess or deficiency of functions under the control of the will. 3d. Noxious foreign matters within the body. 4th. Derangement of the functions or structure of the system. 5th. Agencies of an injurious character, having only an accidental relation to the system.

It will be only necessary here to treat of the various morbid agencies which have so diversified an operation that there is no one disease under which they can be appropriately considered. These are heat, cold, water, electricity, light, atmospheric impurities, miasmata, epidemic influence, and contagion.

HEAT.—A certain degree of this is essential to the healthy performance of the bodily functions. If excessive, it increases the force and frequency of the pulse, augmenting the organic actions, or disturbing them by over-excitement. Generally applied, it can create fever; locally, it stimulates into inflammation. Beyond a certain degree it acts chemically, by coagulating the albumen, and causing decomposition. It stimulates certain organs more than others; as the skin, liver, and alimentary mucous membrane. Irritation and inflammation of these structures are sometimes the direct result of heat. Relief, to a considerable extent, nature has provided by the increase of secretion. The profuse perspiration which heat

induces unloads the vessels of the skin, occasions a reduction of temperature in its immediate vicinity, and thus protects the system. The liver is relieved by an increased secretion of bile, and the bowels by increased exhalation from their lining membrane. Thus bilious cholera and diarrhoea often prevent hepatitis, gastritis, or enteritis. Fatal irritation and congestion of the brain sometimes result from the immediate effect of the sun's rays upon the head, and cooks are subject to a rush of blood to the head, from exposure of that part to the fire. The kidneys secrete less urine, which is loaded with saline matters, causing it to irritate the urinary passage. Thus urinary diseases may be the result of sleeping too warmly in feather beds. When the system is overheated, less oxydation of carbon is necessary, and thus reduces the activity of the lungs; hence the comparative freedom from pulmonary diseases in hot countries. The passive functions of the nervous system—the sensations and emotions—are not impaired by a moderate excess of heat; the more active functions, as intellect and muscular emotion, are depressed; as evinced by general langour and indisposition to exertion of mind or body. This is owing to the conservative power of the system.

By the refrigerating effects of profuse sweating, a very high degree of heat may be borne for a considerable time. Dr. Fordice and Dr. Blagden bore a temperature of 260° F., where eggs were roasted hard, and beefsteaks cooked. Their pulse was much excited, but the interior temperature was not increased, nor was the breathing materially affected. The non-conducting property of dry air, favors the impunity of these experiments.

Organs, excited by heat to unusual secretory action, become subsequently relaxed, and are liable to suffer from exposure to cold or miasmata. Excitation, repeated, wears off excitability of organs, hence arise portal congestion, constipation, &c.

The local, morbid effects of heat are burning and scalding. Its general effects are from summer air, heated rooms or too much clothing, abuse of vapor baths, &c.

COLD.—The tissues shrink under the local influence of cold, secretion is checked, sensibility impaired, surface pale from recession of blood, or purplish from its stagnation. If continued with intensity, a death-like whiteness ensues, circulation ceases entirely, sensibility is lost, and local death soon follows. Under its general influence the heart beats more and more feebly, a general torpor steals over the senses, the brain is confused, there is great muscular weakness, drowsiness, and finally an irresistible propensity to sleep, which is soon followed by death.

The depressing action produces a peculiar sensation, which we call cold, and is agreeable or otherwise, according to its degree, and the previous condition of the surface. When suddenly applied, with some intensity, it produces a shock upon the nerves, and rouses the interior energies. Continued, undiminished coldness, is succeeded by pain, often distressing, local or general, according to the extent of the cause. Sensation is increased, so that a slight blow occasions great suffering; and all this while, circulation, special sensibility, and nervous energy, are much impaired; as is evinced by the shrinking, pallor, and diminished power of motion. This is obviously intended to afford the sufferer some warning of his danger.

Cold, suddenly but temporarily applied, is followed by a delightful and healthful reaction, directly invigorating to the physical energies. If carried too far it produces morbid effects, such as redness, swelling and pain in the part, often amounting to inflammation; and, in general reaction, all the phenomena of fever. Therefore, cold should never be too intensely or too continuously applied. If the system be previously exhausted, reaction may never take place; when the cold is intense, reaction is more or less repressed, and, if continued, may not come on at all.

2. Cold, if continuously applied to the surface, may produce disease, by concentrating the blood and nervous energy in the interior organs, destroying that equilibrium essential

to health. Excess of blood and nervous energy driven upon a part must eventuate in disease.

3. Cold, injudiciously applied, produces sedative effects upon the capillary circulation, and sudden suppression of perspiration, constituting one of the most prolific sources of disease. Perspiration is usually the result of some general excitement, as exercise, heat, &c., which finds a safe issue in the skin. If suddenly suppressed, the excitation is necessarily thrown upon some of the interior organs, and proves a cause of inflammation.

4. Vicissitudes of cold and heat are more injurious to health than a moderate continuance of either. Sudden transitions of mind or body have a morbid tendency. Long continued and severe cold weather, has a depressing influence upon the tone and vigor of the nervous system, and predisposes to unhealthy inflammation; as erysipelas in an epidemic form, or complicated with other forms of disease.

5. Currents of air greatly increase the effect of cold. The body cools very slowly when surrounded by a quiet air, because the atmosphere is a slow conductor of heat. But in active motion, that portion which the body warms is quickly supplied by cold air, and greatly increases the abstraction of heat. Hence draughts of cold air are highly injurious. So also is the partial application of cold to parts unaccustomed to it. Many persons sneeze, or have sore throat if exposed to currents of air on the neck. When connected with moisture, the air has much more conducting power, and its morbid effects are much greater.

Cold most frequently acts through the atmosphere as a morbid agent. It frequently acts through the medium of water, as wet feet, damp or wet apparel; also internally, as cold water taken into the stomach when the body is perspiring from previous exertion or heat.

WATER.—Its effects are sedative, without much apparent reactive tendency. By permeating the tissues, it increases the distance between their ultimate molecules, diminishing vital cohesion, and lessening the action and power of the parts.

Hence the relaxing effects of damp warm weather, the tepid bath, emollient poultices, and warm water taken into the stomach. It induces diseases of debility, and predisposes the system to the influence of cold. Large quantities taken into the stomach, impair the tone of that organ, and, by diluting the gastric juice, impedes digestion. Hence the impropriety of copious drinking during meals.

The action of this agent is frequently modified by temperature, and oftener serves as a vehicle of heat, or of cold, than as a direct morbid agent. To obtain the effects of water alone, it should be tepid or lukewarm. This should be borne in mind in practice.

Combined with heat, water is a stimulant, either externally or internally. This is shown in the general redness of the skin, agreeable cerebral excitement, and accelerated pulse occasioned by the hot bath; hot water in the stomach excites that organ to activity. It produces disease in both cases by over stimulation or by impairing the excitability of the system.

Associated with cold it becomes still more sedative in its influence. A cold damp atmosphere is colder to the senses than a dry one at the same temperature, and is more apt to produce the morbid effects of cold.

Water, through affinity, may become impregnated with miasmata, and in the form of fogs, &c., produce disease in those who are exposed to them.

A perfectly dry air proves highly dangerous, by absorbing all the liquids of the body. If long exposed, the skin and mucous membrane of the air passages become dried up, so that the patient is unable to breathe.

LIGHT.—The eye is the principal organ over which this agent exercises a pathological influence. When applied in excess it may produce irritation and inflammation of that organ, and even paralysis of vision; its close connection with the brain often induces sympathetic disturbance in it.

Physiologically considered, light is one of the most important agents in nature. Its influence over the organic func-

tions is similar to its action on plants, giving them vigor and development. When deprived of it for a long time the system loses its integrity, inducing scrofulous and dropsical affections.

ELECTRICITY.—The nature of this agent, and its relation to the system, being as yet but little understood, our knowledge of its pathological agency must necessarily be limited. A close observation of its effects, however, justify the assertion that it possesses a powerful disease-producing influence, as well as a health-restoring therapeutic action. The peculiar languor, and uneasiness experienced before a thunder storm, and the disappearance of these sensations with the occasion producing them, are examples; it proves the constant influence of atmospheric electricity upon the system, and of the dependence of our health upon a proper equilibrium of that principle.

The effect of electricity produced by lightning cannot be regarded as strictly pathological; it is either mechanical, as upon inorganic bodies, or the destructive evolution of caloric.

ATMOSPHERIC IMPURITY.—Every aeriform product, however produced, whether animal, vegetable or mineral, which tends to contaminate the air, may become a fruitful source of disease. Their effects may be embraced under three heads. 1st. When sufficiently concentrated they destroy life, by excluding pure air from the lungs, causing asphyxia. 2d. By irritation, giving rise to inflammation of the air passages. 3d. By being absorbed into the circulation, producing general effects.

Carbonic acid is noxious only when much concentrated. In this state it produces asphyxia, by spasmodic closure of the glottis. It is always present in the lungs in a very dilute state. When allowed an entrance into the bronchia it either prevents the necessary escape of carbonic acid from the blood, or is absorbed into it, and thence carried to the brain, producing a narcotic effect.

A sufficient quantity to produce the above effect, may be generated by combustion, respiration, fermentation, the prep-

aration of lime, and the various chemical changes going on in nature. The most frequent morbid effects are produced by the burning of coal in close apartments; many persons crowded in small rooms; entering old mines, pits, caves, wells, &c.

Carbonic oxide has been shown by Mr. Higgins, of Dublin, to be powerfully narcotic, producing quickly, when inhaled in a pure state, a loss of sense and motion, followed, if the patient survive, by headache, drowsiness or stupor, giddiness, blindness, nausea, and a quick, irregular pulse; and similar symptoms, in a milder form are produced, by inhaling it when diluted. This gas is said to be evolved along with carbonic acid in the slow combustion of charcoal; which may account for the fact that the gaseous products of burning charcoal are more dangerous than pure carbonic acid.

Carburetted hydrogen cannot be very noxious in its light carburetted form, or fire-damp, as it is constantly inhaled by miners with impunity, even in mixtures which are highly explosive when entered with an unprotected lamp. It is capable of producing fatal effects when concentrated, producing narcotism, probably from venous congestion of the brain, caused by suspension of breathing.

Hydrosulphuric acid, or *sulphuretted hydrogen*, is a violent poison, no matter by what channel it may enter the system. Chaussier shows, that a horse was killed by breathing an atmosphere containing a 290th part of this gas. A horse was killed in a minute, by injecting nine quarts of it into his bowels, and a rabbit, whose body was surrounded with it, so as to affect only his skin, died in ten minutes.

It occasions great nervous derangement and prostration. In minute quantities it causes nausea, drowsiness, and pains; in larger, stupor or convulsions, cold skin, feeble, irregular pulse, total insensibility and death. It appears to be a powerful sedative, acting upon the brain and nerves. It is quite probable that when inhaled with atmospheric air, in a small quantity, it may produce typhoid fever. Its most frequent

source is in privies, exhaled with ammonia and other noxious gases.

Sulphuric acid, is a powerful irritant. It cannot enter the lungs in any great amount of concentration. It is produced with carbonic acid in burning anthracite coal, and adds to its morbid properties.

Chlorine, muriatic acid gas, nitrous acid vapors, and ammonia, are all violent irritants, and produce, in a certain degree of concentration, speedy and severe inflammation of the air passages.

Unknown vapors and gases, which deleteriously impregnate the atmosphere, are abundant where men crowd together, as in cities. These are aeriform emanations from animal excretions, provisions, the combustion of wood and charcoal, cooking, and every variety of chemical process which a large population requires. Hence the air of large cities must be more or less impure and unhealthy. Such an atmosphere defies analysis.

The energies of the human system are diminished, and its vitality enfeebled by impure air, as seen in the energizing influence of country air upon invalids. Impure air acts rather as a predisposing than an exciting cause of disease. This is manifest by the typhoid tendency of diseases during winter, from the extreme fatality of infantile disorders, in cities during summer.

Animal effluvia results from the decomposition of the exhalations from persons of filthy habits, or from crowded apartments and assemblies.

These effluvia may be the result of decomposition within the body, as the feces; but more frequently does not commence until the secreted or excreted matter is eliminated, as in the case of the urine, perspiration, saliva and breath. Cleanliness and ventilation are the sure remedies for their morbid effects. They adhere, to a certain extent, to the clothing and person, and may be conveyed to a considerable distance.

Their nature is unknown, but it is probable that sulphuretted hydrogen is a prominent ingredient. The odour is strong-

ly analogous to that of malignant typhus. They are generated mostly in the hovels of the poor, in prisons, hospitals of armies, &c.

These effluvia are sedative and depressing in their action, and tend to corrupt the blood. Hence they impress on all the diseases which are the result of other causes, a low or typhoid character. Effluvia which propagate contagious disorders will be treated of with diseases of that class.

MIASMATA.—*Malaria*.—*Marsh-miasmata*.—In certain sections of country, abundant vegetable decompositions follow an occasional overflow of the land, and at the season when these are most rife, certain diseases are most apt to prevail, entirely distinct from those which arise from other changes in the qualities of the atmosphere. These aeriform exhalations, have received the title of *marsh-miasmata*, or *malaria*, the former expressive of their origin and nature, the latter of their contamination of the atmosphere.

Heat, moisture and vegetable decomposition are essential to their production, but require a temperature above 60° F.; are very prevalent at 80°, and are generally checked by frost. Continuance, as well as degree of heat is necessary. Hence malarious diseases are more common and violent as we approach the equator.

A slight degree of moisture is necessary to the evolution of miasmata; though large quantities serve as a preventive. Their effects are less felt during heavy rains.

Vegetable decomposition favors the production of miasmata. This is proved by the prevalence of these diseases in the neighborhood of large tropical streams, which are subject to floods, and that leave their banks covered with vegetable remains. The draining of low lands, ponds, &c., cause disease, by exposing organic matters, previously quiescent, to the rays of the sun.

Miasmata have a great affinity for moisture. Thus heavy rains absorb the miasm, and prevent its escape by retaining it in solution. After a certain degree of evaporation, however, the water is unable to hold the proceeds of the vegeta-

ble putrefaction. Persons at sea are less exposed to disease than those on land, owing to the absorption of the miasmata by the water. The morning and evening air is injurious in miasmatic districts, because the moisture of the atmosphere diffuses the poison.

The air of large cities appears to neutralize these effluvia; the reason of this is not well known, though supposed to be connected with the results of the extensive combustion occurring in densely populated districts.

As we know little or nothing of the nature of miasmata, the manner in which they operate to produce disease must likewise remain a mystery. It would seem probable that they enter the system by absorption through the air-cells of the lungs, or even through the skin. A full meal and active stimulation by means of ardent spirits are supposed to resist their action. This, however, admits of a doubt.

The effects of miasmata usually manifest themselves in the form of intermittent and remittent bilious fevers. They are supposed to be capable of producing diarrhœa, cholera, dysentery, colic, various hepatic and gastric derangements, and neuralgia. Inhabitants of miasmatic districts are apt to have signs of feeble health, as spare habits of body, sallow complexions, irregular appetite and bowels, enlarged spleen or liver, swollen abdomen, and dropsical symptoms. Some writers assert that the race is liable to degenerate under the long continued influence of malaria, becoming weaker and more diminutive, with less vigorous intellects; and the inferior animals, transferred to these localities, are apt to sicken and die. Persons may become acclimated, and the susceptibility to the poisonous influence diminishes, so that they are less liable to be attacked even in the sickly season.

EPIDEMIC INFLUENCE.—The term *epidemic* signifies a class of affections that prevail at certain times in community, originating from some extraneous cause. Occasionally, diseases prevail temporarily throughout a more or less extensive range of country, strikingly different, in every way, from those which are common to such region; hence these are termed

epidemics. The ordinary diseases peculiar to any section are called *endemic*, because originating within the country itself.

Any cause which operates extensively, or with unusual violence, may produce epidemics; as extreme vicissitudes of weather, from the long continued prevalence of cold damp winds, or of heat with moisture, and from miasmatic exhalations when unusually abundant, or carried in unusual directions by steady currents of air. The term is often extended to those widely prevalent diseases, which add their scourge to the evils of famine, and arise from insufficient or unwholesome food, depressing emotions, and the noxious effluvia of crowded houses.

It is impossible, in the majority of this class of diseases, to discover their true cause. All we can say with certainty is, there must be some distempered condition around us, some secret power that is operating injuriously upon the system; and this we call *epidemic influence*. By close observation, some of the laws which appear to govern its operations have been deduced.

1. Though this epidemic influence frequently gives rise to disease, independent of any other known cause, it is oftener associated with other causes; thus scarlatina, small-pox, and other contagious eruptive diseases, sometimes become epidemic.

2. Sometimes this influence, instead of making any one disease especially prevalent, gives a certain type or direction to existing diseases; generally a low, typhoid tendency; occasionally of an inflammatory nature. It may direct to particular organs; as the head, the chest, the bowels, &c. Hence no particular plan of treatment should be generally adopted, in diseases apparently identical; because the modifications they may put on may require very different and perhaps opposite management.

3. Epidemics give more or less of their own character to diseases. When cholera is prevalent, looseness of the bowels attends other affections; when influenza, there is catarrhal complications. Thus the endemic diseases wear the livery of

the epidemic. I have often observed that when scarlatina prevails, many persons complain of sore throat, and nearly every person, on examination, exhibits a vascularity of the tongue and throat, who is otherwise well.

4. Epidemic influence is sometimes restricted to a limited district, and at others it spreads over a wide extent, and may encircle the earth. When widely extended, it never prevails everywhere at the same time, nor with similar violence, or rapidity. Opposing currents do not suspend its onward march.

5. It may give warning of its approach by a change in prevailing diseases to a form analagous to the epidemic, or the occurrence of slight disorders of a similar kind. Thus the breaking out of cholera, is often preceded by a tendency to diarrhœa.

6. The first effect of the cause, in full action, is the most violent. The number of fatal cases lessens with the increased prevalence of the disorder.

7. The length of time epidemics continue is exceedingly various, as from a few weeks to seven years, with occasional irregular intermissions.

8. After a certain epidemic tendency has continued for several years, it will be followed by one of a different kind, which, in turn will give way to the former, or to a third, different from either, a short period of exemption from disease intervening in each instance.

9. Epidemics affect the lower animals, and seasons of great fatality among them coincide with the sufferings of the human race.

CONTAGION.—The product of any peculiar disease, capable of producing the same malady in another person, and of thus propagating itself, is called *contagion*, and the disease a *contagious* one. The term *infectious* is applied to the disease in like manner, and *infection* to the cause capable of producing it.

Contagion is the product of exhalation or secretion and may be solid, liquid, or aeriform. In the first two forms it acts by simple contact, as in syphilis, or by application to a wound

or abraded surface, as in hydrophobia and vaccination. In the aerial state it acts through the atmosphere mostly by inhalation into the lungs. In all forms, it operates through absorption, in producing constitutional effects. It is sometimes confined to the affected surface, and does not contaminate the system, as in scabies and porrigo.

Contagious matter may be the product of local action, as syphilis, or may be connected with a general contamination of the system, and exhaled from all the surfaces of the body, as small pox, scarlatina, &c. It has no sensible properties, and yields no evidence of it to chemical investigation. In small pox and typhus fever there is a disagreeable odor, though perhaps, it is not the infection that causes the odor. In whooping-cough, measles, &c., there is no odor.

Different exhalations, have very different contagious power, sometimes feeble, as in scarlatina, in others, active, as in small-pox. It acts only at a short distance from its source, yet with some difference in this respect.

Effluvia are capable of attaching themselves to the clothing, hair, merchandise, &c., and may be carried to a great distance. A mere entrance of a physician into a sick room is rarely sufficient to impregnate his clothing, and hence he seldom conveys contagion from one patient to another. Prudence however dictates great care. The greatest danger is when boxes containing infected goods are first opened. It is safest to regard the period of its infection indefinite, and employ chemical measures to destroy it.

Heat at 120° F., is said to render it inert; hence boiling or baking infected clothes, renders it harmless. Intense cold also destroys it. Chlorine, and other chemicals, have power to destroy it. Contagion shows its action in from two days to three weeks after exposure, and it is generally depressing in its effects. The resulting diseases are usually febrile. Many and perhaps all the contagious diseases may arise from other causes, and afterwards propagate themselves. Contagious affections of inferior animals are sometimes imparted to man, as glanders, vaccine disease, hydrophobia, &c.

The nature and mode of action of the contagious principle, are unsettled points, but their power of reproduction, and the immunity which one attack gives against another, merits notice. There is a striking difference between them; most of them obey the general law just stated, others are capable of affecting the same individual as often as they are brought in contact with them.

PREDISPOSITIONS.—These are the conditions of the system which render it especially liable to attacks of disease. They may be arranged in three divisions: 1st. Conditions which are not in themselves deviations from health, called *aptitudes*. 2d. Those not strictly healthy, but predisposed to no peculiar exclusive disease. 3d. Embraces what is usually termed *diathesis* or tendency to special diseases. Among these *aptitudes* we may consider *temperaments*, *idiosyncrasies*, *sex*, and *age*; among the predispositions, *hereditary tendencies*, *habit*, the effects of climate, results of occupation, and *modes of life*.

1. *Temperaments*.—Few individuals can be found whose constitutions are so nicely balanced, as not to show an aptitude to some particular disease. Almost all have some part of the system weaker or stronger than the rest. These constitutional peculiarities are called temperaments. The *sanguine temperament*, in which the circulatory system predominates, predisposes to acute inflammations, hemorrhages, and fevers, of a sthenic character; the *lymphatic temperament*, which is characterized by an excess of the colorless tissues, to scrofulous and dropsical affections; the *nervous temperament*, in which the cerebro-spinal system is in excess, or peculiarly excitable, to neuralgia and various forms of nervous diseases; and the *bilious temperament*, to hepatic and dyspeptic disorders.

2. *Idiosyncrasies*.—These are highly important. Many persons have peculiarities which render them susceptible to morbid impressions from causes, which in general either produce no effect, or one entirely different. Thus, certain kinds of food which are wholesome may produce violent urticaria.

Exhalations, harmless to the great mass, excite in certain persons excessive irritation of the air-passages. Some persons faint at the smell of odors which are generally agreeable to others. Inferences as to the morbid liabilities of individuals may sometimes be drawn from the shape or size of their organs.

3. *Sex*.—In giving peculiar morbid tendencies this has great influence; and each sex is prone to diseases belonging to its own peculiar functions. Women, in consequence of the greater excitability of their nervous system, are especially predisposed to nervous affections; and causes, which in men produce inflammation, will in them give rise to mere functional disorder. From the same cause, women are especially liable to spinal disorders, and to all the protean forms of hysteria.

4. *Age*.—The brain develops early, and the skin is tender in very young infants, hence they are predisposed to cerebral and cutaneous diseases. Teething keeps up constant irritation, which through unimpaired sympathies extends to the skin, bowels, brain, and gives rise to diseases of these parts, and frequently produces convulsions. Hence the most dangerous period of life is the first three years. Children are exposed to contagious diseases of all kinds. The female at the age of puberty is subject to chlorosis, chorea, and hysteria, which may also occur at other periods. At a later period in life there is a strong predisposition to hemorrhages, consumption, and dyspepsia. At the period of decline there is predisposition to organic diseases of the brain, the heart, and the urinary and genital organs.

5. *Hereditary tendency*.—Children often resemble their parents in form, internal peculiarities and morbid tendencies. Such an inheritance may descend from either parent or both. Hence the danger of constant intermarriage between blood relations, which sometimes passes over one generation and fixes on the next. The vices of parents often fall upon the children with peculiar force, and parents are thus stripped of their offspring. A vicious system of physical education often

predisposes to disease, and is much more frequent among the rich than the poor. Inherited diseases are apt to appear in early life.

6. *Habit*.—This has generally a salutary influence, for if the system is frequently exposed to a morbid influence, it will become reconciled to it after a time and cease to receive injury. Thus persons become acclimated in unhealthy districts, and when brought up in such localities seldom suffer. Habit occasionally constitutes a predisposition to disease. Hence, a person who has accustomed himself to influences ordinarily injurious to health, forms a second nature, and they often become necessary to his physical well-being. The changes in habits should be gradually made, unless immediate danger is apprehended from their continuance.

7. *Effects of Climate*.—Predispositions to disease frequently arise from climate. In warm regions the hepatic apparatus is kept in an undue state of excitement, by the direct influence of heat and the duty it performs in the elimination of carbonaceous matter. In cold climates the above condition is exactly reversed, and diseases of the lungs are common. In temperate latitudes there is less tendency to disease in any one organ; but the frequent changes of the weather, and consequent varying conditions of the organ, produce a general tendency to inflammatory diseases. Atmospheric changes are more severely felt when the climate is damp, and the morbid tendency is also greater, producing rheumatic and catarrhal affections as frequent results. Warm, moist climates, depress the system and predispose to low forms of disease. Dry, hot climates predispose to disease of the skin.

8. *Effects of Education and Modes of Life*.—Numerous predisposing influences flow from these causes. The habitual use of animal food produces a superabundance and richness of the blood, which strongly predisposes to inflammatory affections. An exclusive vegetable diet impoverishes the blood, occasions general debility, inducing scrofulous and tuberculous diseases, and various nervous derangements. Scanty, unwholesome or putrid food, vitiates the fluids and solids

of the body, predisposing it to scurvy and low forms of fever. Stimulating drinks and condiments favor directly the causes of irritation, and, by the relaxation which follows their use, open the system to the assaults of morbid causes in general. Clothing, if too scanty, too abundant, or too tight, induces similar affections as those resulting from heat and cold. Occupations of all kinds, including the pursuit of pleasure, may, by imprudence, occasion predisposition to disease, in two ways: 1st. Over-exercise of the organs, rendering them the center of excitement, disposes them to inflammation from other causes. 2d. Over-exercise, continued too long, exhausts the excitability of the organs, impairing their powers, and exposes the system to failure of their functions, and to all the morbid influences which debility induces.

CHAPTER III.

SYMPTOMATOLOGY, OR SEMEIOLOGY.

SYMPTOMS are sensible effects of disease, which are perceptible to the patient or the physician.

Signs are the evidences by which diseases are detected.

All symptoms are necessarily signs; but signs may occur which are not symptoms; as the sex or age of a patient may determine the character of some particular disease; and the origin of a disorder, when understood by us, often forms our opinion of its character. Such may be signs, but cannot be symptoms.

Symptomatology, or Semeiology, is the science which teaches the symptoms and signs of diseases in all their connections.

The Course of a disease, as far as it can be understood, is the peculiar succession of its symptoms.

The Diagnosis is the application of the signs and symptoms of a disease, to the formation of an opinion as to its character.

The Prognosis is the deduction of inferences from the symptoms as to the future progress and result of a disease.

SECTION I.

SYMPTOMS OR SIGNS OF DISEASE.

I. SYMPTOMS BELONGING TO THE DIGESTIVE FUNCTIONS.—*The Tongue*.—My remarks will have reference to the general indications afforded by this organ, which serves as a valuable guide in detecting the stage, progress and intensity of diseases. The tongue sympathises with all portions of the digestive tube, and participates in all general derangements of the system.

Its bulk may become increased or diminished; the former is one of the first results of mercurial treatment; the latter of a want of blood, either from lack of this fluid, or feeble action of the heart; or it may be the effect of mere dryness.

Its color is much altered by disease. It is red in gastritis, though far from being an invariable symptom, as some have supposed. Its *livid* color is owing to deficient arterialization of the blood; and it is *pale* in anemic patients.

Dryness of the tongue is an important therapeutical indication, when it is the result of general disease. It is caused by suspension of the secretions of the mouth, and is present in most febrile complaints.

The temperature of the tongue is a guide to that of the whole body, when it is varied by the state of the system. It is cold in cholera, and whenever vitality is very low; for the exhaling breath must be cool before the temperature of the tongue can be much reduced, except from cold water or ice in the mouth, or from the patient having slept long with the mouth open in a cold air. Heat of the tongue, except from inflammation of it, is a sign of increased heat in the system.

The furred tongue is the most valuable diagnostic symptom afforded by it. It is often covered with a coating which cannot be removed without removing its surface. The deposits on it from the saliva and mucus of the mouth can readily be removed. The real fur, however, is a secretion from the tongue itself, and is incorporated with the epithelium; it is usually confined to its upper surface, where the membrane is papillary. Some persons, in apparent health, have an habitual furred tongue, yet it is generally a sign of disease. It usually accompanies fever, and when *white, thickish, tolerably uniform* and *moist*, it indicates an open, active state, without lurking mischief, or malignant tendency. When the fur is *adhesive* and *scanty*, showing the redness of the tongue through it, with some dry deposits, an obstinate, low, typhoid form of fever is indicated. A *yellowish hue* of the fur indicates biliousness, caused by vomiting bile, or secreting it from the blood, when there is either deficient or excessive action of the liver. It may be accompanied with a bitter taste, especially in miasmatic fevers and diseases of the liver.

The brown or black tongue is indicative of an impaired state of the blood, and is owing to the secretion of a dark matter, consisting of blood, modified in passing out of the vessels, and is also found on the teeth and lips in typhous fevers. The white fur is frequently modified by *red points*, which are the tops of swollen papillæ. This is common in eruptive diseases. In a dyspeptic state of the stomach the fur is most copious in the morning before eating.

When the fur gradually recedes from the tip and edges of the tongue, it indicates convalescence. It sometimes loosens and separates in flakes, often commencing at the middle or back part; at others, in large patches, or almost the whole tongue at once, leaving a smooth, red, glossy surface, which, if the tongue be moist, indicates convalescence in acute cases. The indications are less favorable, when, in addition to dryness, the tongue becomes gashed, chapped, fissured, or rough and scaly. A smooth, red and glossy tongue, indicates serious organic disease of the mucous membrane of the stomach

and bowels. *An aphthous state* of the tongue is apt to come on in the advanced stages of chronic diseases, and is often a fatal sign; though in health it is not alarming.

A loss or depravation of taste is common, and caused by a morbid state of the surface of the tongue, which receives the gustatory impressions. When paralytic it indicates disease of the encephalon.

The motion of the tongue, in acute diseases, is apt to be good. In dangerous cerebral affections the patient is unable to protrude it, or the organ trembles, and there is hesitation of utterance. Hemiplegia is indicated if the tongue inclines to one side on protrusion.

Deglutition.—Sometimes this is difficult, or impossible: 1st. From muscular inability; 2d, contraction of the passage by stricture, or tumour; 3d, too great in body to be swallowed; and 4th, disease of the larynx, preventing closure of the glottis, as when the epiglottis is ulcerated, swollen, or stiffened. In pure functional disorder, as hysteria, it is of small moment.

Appetite and desire for Drinks.—The appetite may become excessive, deficient or depraved. Its loss is common in fevers, and its return is a sure sign of convalescence. Hunger, in such cases, is a bad sign, showing great nervous derangement. *Bulimia*, or excess of appetite, is less frequent than deficiency. It may be owing to irritation of the stomach, consumption of the living tissues, or of the blood, or mere nervous derangement. A desire for substances commonly disgusting, or wholly innutritious, generally results from gastric, or nervous disorders, as in pregnancy or hysteria, &c.

The morbid desire for drink is more frequent than appetite, and often when the latter is lost, as in fevers. *Thirst* arises from two opposite conditions; one is that of excitement, the other of depression. When the blood requires dilution, an impression is received from it, by all the tissues, which is conveyed to the brain and occasions thirst. This sensation is extreme in the lowest malignant diseases, when the capilla-

ries are nearly empty, and there is often the most urgent call for water to fill them.

Nausea and Vomiting.—These symptoms are sometimes very obstinate, without any obvious cause; as in apparent disease of the stomach, or other abdominal viscus, without spinal tenderness, there is reason to fear the brain is diseased, or that an eruptive affection is maturing itself. This subject is so very important, I shall call special attention to it hereafter.

Defecation.—The symptoms arising from this process, are of vast importance and require careful attention. A patient may have daily evacuation, or oftener, but it may be scanty and quite insufficient to prevent large fecal accumulations. There are cases of apparent diarrhoea, with real and dangerous constipation. The colour, consistence, and nature of the stools, often indicate the character of the disease. A neglect to attend to this, even though it be a disagreeable duty, may prove fatal to many patients.

2. SYMPTOMS BELONGING TO THE RESPIRATORY FUNCTION.—The symptoms which the respiratory system present, are of the highest importance, as to the condition of the lungs and other organs, and also to that of the system generally. Respiration may be abnormally *frequent* or *slow*, *rapid* or *prolonged*, *forcible* or *feeble*, *irregular*, *wheezing*, *stertorous*, *spasmodic* or *convulsive*; it may also be peculiar in the association or succession of its movements, or by its attendant phenomena, as *sneezing*, *coughing*, *laughing*, *crying*, *sobbing*, *yawning*, and *hiccough*. Other signs of disease are the *temperature* and *odor* of the expired air. In fevers, the breath is hot; in cholera, and malignant typhus, it is cool. A sour smell of the breath indicates acid in the circulation; an offensive odor, either pulmonary gangrene, a diseased condition of the blood, mercurial action, or local disease of the mouth, fauces or nostrils. Poisonous substances which have been swallowed, may often be detected in the breath, as alcohol, prussic acid, &c. *Expectorated matter* affords valuable signs. *Measurement*, *percussion* and *auscultation*, &c., are of unlimited importance;

which will be treated of in connection with diseases of the respiratory apparatus.

Dyspnœa.—Difficult breathing is a common symptom, dependent on very different pathological conditions, and offers the most opposite practical indications. An impression of a peculiar kind upon the nervous center which presides over respiration, is constant in all varieties of dyspnœa. This disordered action may arise from the center itself, or from any part interested. Want of due arterialization of the blood is usually the remote cause. Whenever this occurs, an impression is made on the medulla oblongata, through the afferent nerves, causing the sensation of *want of breath*; a motor impulse is then sent off from that center by the efferent nerves to the respiratory muscles. The degree of the dyspnœa is often so great that the patient gasps for breath, the chest heaves, the expression is anxious, position erect, to relieve the diaphragm, with desire to get into the open air. Again, cases are so mild as to cause little uneasiness, and but slight increase in the frequency of respiration.

The circumstances on which the remote cause of dyspnœa depend—want of due oxydation of blood—are various. We may have, 1st. Congestion of the capillaries of the lungs, preventing the entrance of air into the cells, and retarding circulation. 2d. Results of different pulmonary diseases, as hepatization, compression, destruction of tissue, or effusion of liquid into the cells, excluding the air. Tumours within the chest, thoracic dropsies, &c., operate similarly. 3d. Spasm of the glottis and air tubes, or constriction from tumours, &c., so as to prevent air from reaching the cells; as in spasmodic asthma, bronchocele, &c. 4th. The respiratory muscles, from paralysis, or some other cause, lose their contractile power, causing excessive action of accessory muscles. 5th. Rarified or impure air. In the management of dyspnœa, it is important to discriminate between the various circumstances producing it.

Cough.—This phenomenon is produced by a sudden and forcible expiration, preceded by temporary closure of the

glottis, to give greater force to the current of air. The process is, like that of dyspnœa, an impression upon a nervous center, the object of which is the removal of offending matters from the air tubes. The source of this impression may be, 1st, irritation from foreign substances, or certain qualities of the air; 2d, extreme sensibility to air from inflammation; 3d, disordered action in the nervous center, producing nervous and spasmodic cough, as in hysteria.

In its character cough is subject to various modifications. The principal are, *dry cough* without and *moist cough* with expectoration; the *short, hacking cough*, from slight irritation; the *spasmodic* and *convulsive cough*, from a greater degree of the same cause; *paroxysmal* and *incessant cough*, from its manner of recurrence; &c. Modifications in the tension of the rima glottidis, gives rise to *hoarse, wheezing, shrill, hollow, and barking coughs*. We have also the *laryngial, pectoral, hepatic, stomachic, &c.*, according to the supposed seat.

Expectoration, or spitting.—This is the process of discharging the secretions from the air-passages, and is usually performed by coughing. When the bronchial secretion is very copious, it may be ejected in a full stream by a simultaneous contraction of all the muscles of expiration, which is called *pectoral vomiting*. Blood from the lungs, when very copious, may be thrown off in a same manner. Expectoration may also occur by hawking, when the liquid rises gradually as far as the glottis and fauces.

3. SYMPTOMS BELONGING TO THE CIRCULATORY FUNCTION.—The size, position and action of the heart, affords numerous signs, important in diagnosis, which I shall describe when treating of that organ.

The Pulse is the beating of the arteries, which are slightly expanded and sometimes laterally displaced at each pulsation, and then return to their usual size and position, after which there is an interval of rest. The heart gives the impulse by which the expanding wave of blood is carried onward; and the vessels contract, either by their own elasticity alone, or by some additional vital force. The pulse everywhere cor-

responds with the systole of the ventricles of the heart, hence every peculiarity of the pulse must depend chiefly upon that of the heart's action.

Frequency of the pulse has reference to the number of its pulsations in a given time. It varies much in health, and differs greatly in age. The average frequency at birth is 130 to 140 beats in a minute; the second year, 100 to 120; in the eighth year, 90; at puberty, 80; at the middle age, 65 to 75; and in the old, 55 to 65. Different authors greatly disagree upon this subject. Temperament and idiosyncrasy greatly modify the pulse. Thus young persons may be found with a pulse below 60, and old men with that of 80; while some persons with it habitually exceeding 100, and others falling short of 40, are in apparent health. The pulse is more frequent by 6 or 8 in women than men, and much more so in the nervous and sanguine than in the bilious and phlegmatic. It is often faster in thin than in fat people, and in those under than those over the medium size.

The pulse is more frequent in the morning than evening; after a meal than before it; in standing than in sitting; and in sitting than when recumbent. Physical and intellectual excitement renders it more frequent, and during sleep it is slower than when awake. If the pulse beat more than 160 per minute it cannot be accurately counted.

Quickness of the pulse refers to the suddenness with which each pulsation is made, and indicates inflammation. In this the heart makes a quick short contraction, while in a frequent pulse its movements may be uniform.

The jerking pulse is characterized by a quick, rather forcible beat, followed by an abrupt cessation, and evinces valvular disease of the heart, or occasionally nervous affections.

Slow pulse is caused by cerebral compression, internal venous congestion, and impairment of the vital energies; as in apoplexy, congestion and malignant fevers.

A strong pulse is one which affords unnatural resistance to the finger during the *diastole*; not to be confounded with a *hard* pulse. It is *hard* when the artery is felt firm under the

finger, like a tense *cord*, both in systole and diastole, sometimes called *corded*. *Strength* and *great frequency* are never united, a strong pulse seldom exceeding 115, and indicates energy of vital power.

A *feeble pulse* is the reverse of the strong; it is *feeble* when the artery gives a weak impression to the finger. *Feebleness* and *softness* are not synonymous; the artery may resist pressure and yet pulsate feebly. The pulse is soft when the artery is filled and yet vanishes on slight pressure. It is favorable in the latter stage of fevers. If in pneumonic inflammation, with difficult respiration, and suffused countenance, it is indicative of great danger.

A *full pulse* is never very frequent, and sometimes much slower than is natural; it occurs in inflammations seated above the diaphragm.

A *small pulse* is when the diameter of the artery is less than natural, and indicates inflammation seated below the diaphragm.

Depressed pulse signifies one that is small, apparently feeble, and occasionally quick; it depends on internal congestion. If the pulse is small and obscure in the beginning of acute diseases, we may conclude it is depressed.

Intermitting pulse is said to be of dyspeptic origin. It frequently occurs in old age, when it may depend on some affection of the heart. It also is found in diseases of the brain. Its occurrence in the last stages of fevers is very unfavorable. The pulse of some persons habitually intermits.

Irregular pulse is characterized by constant variation in frequency, quickness, size, hardness, &c.; is usually indicative of great danger. A pulse twice-beating is called *dicrotus pulse*.

Gaseous pulse: tumid—inflated—soap-bubble: their characters are sufficiently indicated by their names, and always show much prostration.

Morbidly natural pulse can only be distinguished from a healthy pulse by the concomitant symptoms. It occurs in malignant fevers and is very unfavorable.

Undulating pulse, or a wave-like rising and falling of the pulse, is generally large, soft and feeble. When very small it is termed *creeping*, and is highly dangerous.

Shattered pulse, is one which presents the sensation under the finger of a shattered quill, and occurs as an effect of eating opium.

Obstructed pulse is one in which the artery remains equally full during its diastole and systole.

Thrilling pulse occurs in aneurisms, disease of the heart and anemia. The *trembling* pulse is another modification caused by successive efforts of the heart to effect a systole, and indicates debility.

Rebounding pulse may be the result of excess of energy, inducing a second and subordinate contraction of the ventricles, by which it may be more completely emptied than by a regular systole.

The arteries in some persons are large, in others small; and they may be deep seated or superficial; thin, distensible, or thick and rigid, all of which will have a decided influence on the apparent character of the pulse. They occasionally deviate from their common course; as the radial at the wrist, where the pulse is usually examined, sometimes winds upon the back of it, and there may be danger of supposing the patient pulseless.

Mode of examining the pulse.—It should not be examined immediately on entering the room; the examination should be repeated at short intervals, and in both wrists, and the muscles relaxed by a proper position of the arm. Two or three fingers should be applied to the artery, and 30 or 40 pulsations should be felt at each examination. It should be examined in different positions of the body, and talking and all other causes of excitement, must be strictly prohibited.

State of the capillaries.—By pressing the finger upon the skin, and observing the rapidity with which the blood returns in the whitened spot, we may ascertain the rate of the current through the capillaries. The color also has much value as a symptom. When these vessels are sluggish the color is

apt to be of a dark-red or purplish hue. A florid color indicates a rapid circulation.

Venous Symptoms.—There is an occasional occurrence of a *venous pulse*, which is sometimes a continuation of the heart's impulse through the capillaries, and is an evidence of active excitement of the circulation. In some instances it may be owing to a retrograde current, caused by the contraction of the right ventricle, and indicates an incomplete closure of the tricuspid valves. This venous pulse is most frequent in the jugular veins.

4. SYMPTOMS BELONGING TO THE FUNCTIONS OF SECRETION.—These are of great importance, and require close investigation. We may have increased, diminished or perverted function. When the former is excessive the affection is called *colliquative*. In perverted function, the character of the secretion is changed. Diminished secretion is very common in febrile complaints. The conditions of the individual secretions I shall notice under the diseases they represent.

5. SYMPTOMS BELONGING TO THE CALORIFIC FUNCTIONS.—In health the mean temperature of the body is 100° F., but in disease, especially fever, it often rises to 106° , and in cholera sometimes sinks as low as 60° . It is higher in the young than the old, near the heart than at the extremities, within the body than on the surface, during exercise than at rest.

Temperature and sensation of heat and cold are different things. A person may feel chilly with the temperature even higher than natural. These deranged sensations must be ascribed to nervous disorder, and are generally unfavorable. The change of temperature may be general or local, and different parts may be differently effected at the same time; as the head hot and the extremities cold. Terms expressive of these sensations have been used, as chilliness, coldness, rigors and shivering; and on the other hand warmth, heat, burning, acrid heat, pungent or biting heat, (*calor mordicans*) &c. The shivering, trembling and shaking are often effects of mere nervousness, without change of temperature.

6. SYMPTOMS BELONGING TO THE SENSORIAL FUNCTIONS.—In these are embraced all derangements, not only of general and special sensation, but also of feelings which proceed from the interior organs and tissues, by which they make their wants and sufferings known, as nausea, hunger, thirst, breathlessness, &c.; these will be considered hereafter. General sensation is deranged in two ways,—1st, defective or altogether wanting; 2d—it is altered, constituting various kinds of uneasiness, which may be classed under the head of pain.

Pain is indefinable, known only to those who have suffered it. It may be caused by irritation, excessive excitement, inflammation, or depression and debility, as cold and neuralgia. Inflammation is not always attended with pain. Pain may be seated in the nerves independent of the sense of touch, as in somnambulism, or the mesmeric state.

Pain differs in its modes of recurrence, degree and character. It is *fugitive* or *persistent*, *wandering* or *fixed*, *intermittent*, *remittent*, or *continued*. In grade, it is *slight*, *moderate*, *severe*, *violent*, *intense*, *excruciating*, or *agonizing*. In character, it is *dull* or *obtuse*, *sharp* or *acute*, *aching*, *smarting*, &c., and in varieties it has received peculiar names, from analogies, as *lancinating*, *cutting*, *stinging*, *pungent*, *boring*, *tearing* or *rending*, *gnawing*, &c. When attended with a beating it is called *pulsating* or *throbbing*; when with a feeling of tightness, *tensive*; when with weight, *heavy*; when with heat, *burning*; There are peculiar sensations, which, in excess, are positively painful; as *itching*, *tickling*, *pricking*, *tingling*, &c. To pain belongs *tenderness*, which is considered a certain sign of inflammation. It may exist without it, as in many forms of neuralgia, spasm, &c. Finally we may have vague sensations under pain, as *general uneasiness*, *restlessness*, or *inquietude*, *anxiety*, and *oppression*.

If the pain is fixed in the side, it may be presumed that it is pleuritis; and if wandering, pleurodinia. In serous and synovial membranes, it is often severe, sharp and acute; in mucous membranes and parenchyma of the viscera, dull or obtuse, oppressive, heavy, &c.; in the skin, burning, itching,

tingling, &c. It may be felt in a part distant from where the cause exists; as in irritation of the stomach, it will be felt in the forehead and eyes; in hepatitis, in the shoulder; in inflammation of the hip-joint, in the knee; and in disease along any passage, at the outer extremity of it.

The descriptions of the patient must not be taken as a guide. Different persons attach different meanings to the same words, and some are apt to exaggerate all their feelings. It is safer to judge from the expression of the countenance and tone of voice. Patients have very different degrees of sensibility,—some are little sensible to pain, and others suffer greatly from slight causes.

Special Sensations.—Sight, hearing, smell, taste and touch, are liable to be morbidly exalted, depressed or perverted, by morbid influences, and by irritating impressions from distant organs, reflected on them from their nervous centres. Hence the *muscæ volitantes* and the *tinitis aurium* which often accompany gastric derangement. But more of this when treating diseases of the organs of special sensation.

7. SYMPTOMS BELONGING TO THE INTELLECTUAL AND EMOTIONAL FUNCTIONS.—These embrace all the morbid phenomena of intellect; augmented, defective, or perverted memory; emotional excitement, pleasing or painful; low spirits, depraved dispositions and tastes, and facial expression. Suspended or disordered cerebral action, as heaviness, drowsiness, somnolence, stupor, lethargy, coma, vertigo, dizziness, giddiness, faintness, wakefulness, disturbed dreams, somnambulism, &c. All the necessary general remarks may be made under delirium and facial expression. Some diseases almost uniformly produce cheerfulness, confidence and resignation, as phthisis; and others as often produce mental dejection and despondency, as hepatic and gastric disorders.

Delirium is an acute and temporary disease of the intellectual or perceptive faculties. When chronic it becomes insanity. Some persons are more liable to it than others. It is more frequent in the young than old, and in nervous persons than others. The causes are various, and those es-

pecially acting on the hemispheres of the brain. Those acting on the base, are apt to evince disorder of general sensation or of the motive power. Meningeal affections are marked by active delirium, while disease of the brain itself, by impaired intellect, lethargy, coma, &c. Diseases of the stomach, liver, bowels, and uterus, often send impressions to the brain which cause delirium. A want of action of the brain may give rise to it. Hence it may be active or passive, and both differ greatly in degree, being sometimes *mild*, at others *violent*, or *furious*.

The milder grades are characterized by some mental aberration, with little action; the higher, by violence of gesture, voice and language. The brain acts wrongly in passive delirium, and cannot elevate itself to due perception and judgment. Hence, in the low, *muttering delirium* of typhus, proper stimulus restores temporary correctness of thought; as when the patient is muttering without meaning, if aroused and spoken to in a loud and distinct voice, he will reply correctly. Again, there is complete aberration; he imagines himself in a strange place, and wants to go home; which is a bad symptom. In others, the perceptions are correct, but the judgment is perverted. The reverse of this may occur; the perception may be wrong, and the judgment act correctly upon the perception, as when he imagines he sees objects and hears sounds, and acts as if those sights and sounds were real.

Facial Expression is of the greatest importance to the physician, and should be carefully studied. Through it may be recognized pain, mental anxiety or depression, insanity, pectoral or abdominal disease, when other signs are obscure or unavailable. This is valuable in children, insane persons, and in feigned diseases. At a glance we often observe whether our patient has changed for better or worse in our absence. This faculty is only acquired by long and careful experience.

The *colour, shape and temperature* afford important indications. *Paleness* shows anemia, debility, nausea, &c.; and is of different kinds, as that of scrofula, or phthisis, and cancer. The face is yellowish in liver diseases. The colour

of the lips is expressive, in tints of crimson, purple and paleness. The *features* may be full, swollen, turgid; or shrunken, contracted, and fallen; the former indicating œdema, or congestion; the latter, exhaustion, prostration, or general collapse. The *Hippocratic face*, called so because described by Hippocrates, marks the near approach of death. It is a general contraction of the features. The nose is pinched, temples hollow, eyes sunken, ears cold and shrunken, skin of the forehead tense, the lips parted and relaxed, and the colour of the face pale or livid. Coldness of the ears, or tips of the ears, may indicate the approach of a chill, and coldness of the cheeks, nose and ears, may enable us to judge of the degree of prostration in infants. Alternate contraction and expansion of the alæ nasi indicates dyspnœa; irregular motions of the eyes, with contracted or expanded pupil, show disease of the brain; and falling of the under jaw is present in the last agony of dying.

8. SYMPTOMS BELONGING TO THE MOTOR FUNCTION.—These arise from a deficiency or a complete want of muscular contraction, as in debility, palsy, or disease of the muscles; from excessive contraction, as in spasm, convulsions, and subsultus tendinum; or from irregular or perverted contraction. We include all the involuntary motions, the gestures, the manner of walking, running, &c.; the position, as standing, sitting, and lying; and all the symptoms of voice, and speech, as suppression of voice, hoarseness, shrillness, dumbness, stammering, &c. These and many other symptoms will be explained in connexion with diseases in which they are found.

SECTION II.

COURSE, DURATION, AND TERMINATION OF DISEASE.

The *course* of a disease signifies the succession of its symptoms, in order and rapidity. *Continued* disease is when the symptoms do not abate, but increase in violence to the point at which recovery begins, or the patient sinks. *Remittent*

disease is one in which there are *remissions* or abatement; and the period of excitement is called *exacerbation*. Intermittent affections are those which afford intervals of freedom from all symptoms of excitement, and the stage of excitement is termed *paroxysm*.

Remissions usually occur once in every 24 hours, but the period may depend on the nature of the morbid condition peculiar to each disease, as the third or fourth day in small pox, and the second and third day in yellow fever. It may depend on causes connected with any particular disease, the constitution, or external influences. It is a law of our physical and moral natures that excitement cannot be long sustained at a particular point of elevation. The cause of remission and exacerbation once in 24 hours may be found in the habit of the system of sleeping and waking.

The daily paroxysms of intermittents may be similarly explained. During the period of rest following the paroxysm, the system recovers its excitability, and becomes again susceptible to the influence of the morbid cause.

Disease may be of short or long duration. In the former it is said to be *acute*, in the latter *chronic*. These terms are indefinite; a disease in its first stages may be acute, and afterwards become chronic.

Some diseases are variable as to course, duration and end, their effects being wholly circumstantial, as rheumatic affections, neuralgia, &c.; others have a definite course under all conditions, and tend towards health, as small pox and other exanthemata; while still another class are entirely destructive in their tendency, in many cases resisting treatment, as cancerous affections. These differences obviously require different treatment. In the first class, we are to aim at a direct cure; in the second, to prevent bad results; in the last, to palliate.

Crisis, is the turning point of disease; when it begins to give way if the end is to be favorable, or to become decidedly worse if unfavorable. The phenomena which indicate this change, are called *critical symptoms*. These are, increased

secretions, hemorrhages, cutaneous eruptions, glandular swellings, and abscesses. The secretions are from the skin, bowels, and kidneys, forming *critical sweats*, *critical diarrhæa*, and *critical diuresis*. Critical discharges are the *effect*, and not the *cause*, of a favorable or unfavorable change in disease which follows or attends their occurrence.

Hippocrates, "the father of medicine," propagated the doctrine of *critical days*, or that disease was more disposed to change at certain periods than at others, and named the 7th, 14th, 20th, 27th, 34th and 40th days. He supposed there were intermediate days in which disease had a tendency to change, though less than on those days, and others still less; yet some in which a crisis never occurred.

There are some grounds for this opinion, for many diseases show a disposition to end in about 7 days, and miasmatic fevers are apt to return, after being checked, in one, two, three or four weeks, or some septuary period; oftener the second week. The cause of this is not well understood.

Termination.—The termination of a disease may be in convalescence, in another disease, in chronic form of same disease, or in death. Convalescence may take place suddenly as in nervous affections, but is generally gradual. Subsidence of the heart's action, the tongue commencing to throw off its coating, and gradual restoration of secretion are among the first symptoms. It is often retarded by unpleasant symptoms, as night sweats, constipation, irritable nerves, poor appetite, &c., but by degrees these disappear, either spontaneously or under appropriate treatment; the functions, in some cases, then take on increased action, even to exceed the healthy standard.

When a return of the disease interrupts convalescence, it is called a *relapse*. Specific diseases seldom if ever relapse. In others, as miasmatic fevers, rheumatism, &c., it frequently occurs.

Phthisis and scrofula often supervene on tedious convalescence, especially from the eruptive fevers. Again there is

merely a subsidence of the symptoms, assuming the chronic form.

Termination in death, in a large majority of cases, occurs from failure of some vital function, generally the lungs, brain or heart; it may occasionally take place from general exhaustion of the powers of the system. If the lungs fail, it is called *asphyxia*; if the brain, *coma*; if the heart, *syncope*,

Approaching dissolution is indicated by a partial or total loss of consciousness and sensation, shrunken features, dropping of lower jaw, inability to speak or swallow; breathing at first hurried, becoming less frequent until it ceases; pulse feeble and irregular, extremities cool, surface clammy and pale, and sometimes a cadaverous odor is perceptible while the patient still lives. When these symptoms are present the patient is said to be *dying*. The patient sometimes passes quietly away, as though falling asleep; sometimes nature rouses towards the last, and convulsions close the scene. These symptoms vary in duration from one to several hours.

SECTION III.

DIAGNOSIS.

Diagnosis is the science which determines the character of disease, or distinguishes one from another. The symptoms of some diseases are so characteristic that they cannot be mistaken for any other. Others again, so closely resemble each other as to be easily confounded. There are, however, certain determining symptoms present, and these are called *diagnostic*.

When the symptoms do not clearly disclose the nature of the disease, we must call to our aid other sources of information; we must inquire into the cause, modifying influences, age, sex, constitutional peculiarities, habits, climate, &c.

Leading questions should be avoided as much as possible by the physician in diagnostic examinations. The patient

should be allowed to detail his own symptoms, without interference, except to secure a proper order of description.

In the examination of children, avoid exciting them. It prevents perfectly correct inferences, and often fatal consequences have resulted from it.

The investigation should begin with the organ or functions principally affected, and then the several functions separately in a regular order. This saves time, and gives a clearer view of the case.

There are several means of diagnosing disease, which require distinct notice, called *physical signs*. They are *inspection*, *palpation*, *pressure*, *succussion*, *percussion*, *measurement*, and *auscultation*.

1. *Inspection* detects most symptoms purely external. Attitude, movement, color of skin, features, expression of face, &c., are detected by it. The condition of the mouth and fauces, and, with the aid of the *speculum*, that of the uterus, rectum, &c., is made evident by it.

2. *Palpation*.—*Touch*.—This is made by the flat hand, or fingers, laid gently on the part to be examined. Temperature and properties of the skin, as roughness, smoothness, &c., are thus ascertained. Fluctuation, pulsation, movement of tumours, &c., are also detected by this process.

3. *Pressure* is made with the ends of the fingers, or the whole hand. It determines the state of the pulse, and circulation in the capillaries; detects tenderness, hardness, softness, elasticity and fluctuation. In tissues filled with air it occasions *crepitation*; in œdematous parts, *pitting*.

4. *Succussion*.—This sign is used to detect accumulations of water and air in large cavities, and is effected by quickly moving the body backward and forward, or laterally.

5. *Percussion*.—This is the mode of detecting disease by the sound made in striking over the affected part. Over cavities filled with air or gases, as the stomach, bowels, and healthy lungs, it is *resonant*; when over a solid or liquid substance, it is *dull* or *flat*. The more tense the surface the more resonant the sound.

Percussion and palpation, associated, are valuable in detecting abdominal dropsy ; placing the palm of the left hand on one side, and striking quickly with the fingers of the right hand on the opposite side.

Percussion is a valuable mode of detecting diseases of the chest as well as abdomen ; but before the student can make them available he must be familiar with the sounds produced in health. Percussion is of two kinds, *immediate* and *mediate* ; in the former the blow is made directly upon the body ; in the latter, a substance intervenes. The mediate is generally preferable, as being less painful to the patient. The instrument employed for this purpose is called a *pleximeter* ; and may be a flat or oval piece of ivory or silver, an inch or two in diameter. The most convenient one, however, is the index finger of the left hand, fitted accurately to the part, striking upon it gently with the first three fingers of the right.

A French writer recommends that percussion be performed by means of a common sewing thimble, placed on the forefinger, so as to include a little air between the end of the finger and thimble. Another method proposed is striking over the part with the fist of one hand, the palm of the other intervening.

The part percussed should be naked, or slightly covered, and the position frequently changed.

6. *Measurement* is simply ascertaining the dimensions of parts altered in form by disease, and determining whether the enlargement is consistent with health. The usual instruments for this purpose are, a linen tape, of two or three yards in length, graduated in inches ; and the *calipers*.

7. *Auscultation* is the art of detecting sounds developed in the interior of the body, and is the most important of all diagnostic signs. It is performed in two ways ; directly, by the ear applied to the surface, called *immediate*, and indirectly by means of the stethoscope, called *mediate*. The former mode is now generally adopted, as being more convenient, though in peculiar cases the latter is preferable.

Auscultation and percussion may sometimes be advantageously united. By means of a stethoscope applied to the surface, the ear will sometimes distinguish sounds produced by percussion, which cannot be appreciated without such aid. The precise boundaries of different organs, the existence and position of organic changes, and the continuity or separation of contiguous solid bodies, may thus be more certainly detected than by percussion alone.

Chemical and *Microscopic* examinations may sometimes be employed with advantage in diagnosis. Chemical tests are indispensable in the detection of certain morbid states of the urine, bile, and the condition of the blood. The microscope is useful, in many instances, in detecting diseased conditions of the blood and secretions, and distinguishing one morbid product from another.

SECTION IV.

PROGNOSIS.

This is deciding as to the future course of any affection, its changes, and termination, and the periods when they are likely to take place. Our knowledge of the course which the same disease ordinarily pursues, and the peculiar circumstances which may modify the case, must guide us in deciding. Sometimes we may judge with perfect accuracy, but in most cases only probable opinions can be formed, for the reason that so many accidents are likely to occur, and so many unappreciable influences are at work. Therefore predictions should always be given with caution. As a general rule it is best that the patient should not be warned of his danger, for fear of the shock it might produce upon his nervous system. If, however, the patient cannot certainly live, I think he should be informed of that important fact. The friends, at least, should be made acquainted with the real state of the patient, in most cases.

In forming an opinion, the age, sex, modes of life, residence, previous state of health, and all surrounding and attend-

ing influences should be taken into the account. Certain symptoms or conditions may be considered extremely *unfavorable*. This is true in chronic diseases with dropsy supervening upon organic affections, progressive emaciation without an obvious cause, and aphthæ in the mouth and fauces. Such too, are the hippocratic countenance; involuntary fecal discharges; sliding downward in the bed; delirium, in which the patient wishes to return home; when feeble, he gets up and walks; extreme subsultus tendinum; disposition to draw the arms towards the body, when raised to feel the pulse; difficulty of protruding the tongue, and trembling of it; excessive frequency of breathing; difficult deglutition or speech; hiccough; black vomit; a purple or livid appearance of ulcers or wounds.

Favorable signs are the occurrence of critical symptoms, when not extreme, and a gradual subsidence of the symptoms, indicated by cleaning of the tongue, a return of the pulse towards its healthy condition, and the skin to a natural temperature.

CHAPTER IV.

GENERAL THERAPEUTICS.

It is a great truth which should be deeply impressed upon the mind of the physician, that the majority of sick persons will surely recover without medical aid. He must not conclude that every recovery under his management is a *cure*, for this is the very foundation and vitality of empiricism.—Patients who have severe attacks of disease, often survive under improper and even injurious medication. The peculiar

duties of the physician consist in relieving the obstructed processes of vitality, and in equalizing and tranquilizing the commotions of mind and body. It cannot be doubted that many diseases which, if left to nature, would have ended in health, have, under treatment, often terminated in death.

Thousands of physicians are now actively discharging the solemn and responsible duties of their vocation, and greatly benefiting mankind through their arduous and devoted labors, yet such are the false views of the mass of them in regard to the nature of their calling, that the world would be better off if there was not a doctor in it. This is a humbling consideration, which is equally applicable to other pursuits, as that of our chosen profession. This may appear to savor too much of skepticism, but it is the honest conviction of my deliberate judgment, after an intimate connection with and devotion to the profession for more than a score of years.

I do not believe that intelligent and judicious physicians are useless to mankind. On the contrary, I know that by their aid they can *hasten* the recovery of cases which would ultimately end favorably, and in many cases, their exertions are essential to the preservation of life. While, therefore, we guard ourselves against the evils of an overweening confidence in the efficacy of therapeutical measures, we should equally avoid the no less injurious influence of utter skepticism. Such is the nature of our art, that experience or observation alone can give the necessary acumen for the selection of the proper measures required in individual cases.

In the treatment of disease we should be guided by certain rules and principles, and not by the accidental suggestions of the moment. A careful examination should be made into the nature, seat, cause, &c., of the disease, to deduce indications of treatment, or the reason for the employment of certain influences calculated to prove remedial. The character of these influences being known, it only remains to fulfil the indications which may have been deduced. It is my object now to present,—1st, certain general therapeutical indications, and 2d, an account equally general of the remedial

measures that may be employed to meet them. Sometimes the nature of the disease is so obscure as to offer no clear indications of treatment. Under such circumstances we should obey the dictates of experience alone, and employ measures which have often succeeded in similar cases.

In cases enshrouded by doubt, adopt the *expectant plan*; that is, do nothing that will strongly impress the system. Trust to nature and good nursing, and await further developments. In all cases let the resources of nature stand *first* in your reliance; the ever salutary and efficient influence of careful and judicious nursing, wholesome atmosphere and diet, second; and the employment of medicines, though of vast importance, be last in the category.

SECTION I.

GENERAL INDICATIONS.

1. The most important therapeutical indication is the removal of the morbid cause of disease, whenever known. In a great number of diseases this is all that is required of the physician. Again, diseases persist after the cause ceases to operate, though much mitigated in severity, but which would not recover without its removal.

2. The precise nature and seat of the disease next demands attention—whether or not the blood is its primary or essential seat. If so, the indication will be to correct that fluid. Examples of such diseases are anemia, plethora, scurvy, and purpura. Proper diet is most effectual in correcting this condition, though suitable medicines are often valuable.

3. In diseases affecting the solids, the due grade of vital action must be restored, by means which experience has found to be most effectual.

4. When the complaint is regularly *intermittent*, it generally yields readily to treatment. If *remittent*, it should be brought to assume the intermittent form. This may be done

by favoring perspiration and other processes nature takes to effect the same object. Remittents, however, often yield readily to anti-periodic treatment.

Some diseases, as the exanthematous fevers, run a certain course, and, when fully formed, should not be interrupted in their progress by violent measures. The aim of the physician should be to watch their progress, and conduct them to a favorable termination.

Other diseases, indefinite in their course, disposed to terminate favorably, may often be promptly arrested. Its propriety, however, depends on the degree of danger. If threatening, active measures should be used; if moderate, a mild course is advisable.

Those the natural tendency of which is to a fatal termination, should be checked, mildly if we may, energetically if we must.

Those essentially fatal in their character, can only be palliated, and the comfort of the patient attended to.

5. The *stage* of the disease should govern the application of the remedy. In the forming stage it may be cut short by appropriate means, which would fail when the disease is fully established.

6. Any sudden change in the character of a disease should receive early attention, as demanding different management.

7. *Condition of the system*, should influence treatment. In the same disease very different means are called for in the plethoric and robust than in the feeble and anemic. *Age*, *sex*, and *temperament*, are not without influence. Infants are more impressible than adults; females more susceptible than males; the nervous more than the sanguine or bilious temperaments.

Idiosyncracies and *hereditary tendencies*, require attention. Remedies which produce no effect in some persons, operate violently on others. Children of scrofulous parents, as a general rule, need different treatment from those who possess no such hereditary tendency.

The *habits* of the patient should influence the treatment.

It is often necessary, in inflammatory affections of habitual drunkards, to support the nervous system with stimulating drinks, while the other conditions demand an antiplogistic course.

8. *Coincident influences*, as those of *miasmata*, and *epidemics*, often greatly modify diseases, and demand the early attention of the physician. Fevers arising from other causes and even ordinary phlegmasiæ, assume the remittent or malarial character, and demand less relaxing measures than in localities where this influence does not prevail. *Epidemic influence* imparts to diseases at one time a sthenic character; at another a low typhus condition. Thus diseases of a feeble character, may become energetic, and the reverse; presenting in each case, opposite indications.

9. Indications held out by nature, as the continued and irrepressible desire the patient may have for certain articles of food, drink, medicine, &c., ought to receive due attention. When not the result of restlessness or caprice, it may be looked upon as a real want of the system, and should be indulged, though seemingly improper.

10. Lastly, correct all disturbances of the functions, whether connected directly with the disease or not. Keep the bowels regular, and all the secretions in a healthy state. Circulation and temperature should be uniform and at a moderate standard, and nervous action duly regulated according to the demand of the system. We may thus, with due attention to diet and cleanliness, place the system in the best possible position to resist morbid influences, and often, unknowingly, stay the insidious advances of disease, rendering its cure comparatively easy.

SECTION II.

GENERAL THERAPEUTIC PROCESSES.

The general therapeutic processes are, 1. depletion; 2. repletion; 3. dilution; 4. stimulation; 5. sedation; 6. revulsion;

7. supersession ; 8. alteration ; 9. elimination ; 10. chemical action ; 11. mechanical action.

1. DEPLETION.—This signifies a diminution of blood, or some one or more of its solid elements. If a portion of the blood be abstracted, the quality and quantity of it is altered. In consequence of this, increased absorption of water takes place, and the remaining blood in the vessels becomes diluted. It therefore is less stimulating, and of course less capable of affording due support to the functions, almost all of which are dependent upon it. Hence a reduction in the quantity and quality of the blood tends to lessen vital actions. The force of the heart, and all the circulation, is depressed. Digestion, respiration, nutrition, secretion, calorification, and all the functions of animal life, are diminished by depletion. Languor, impaired sensation, diminished emotional and intellectual energy, muscular weakness, even faintness and positive syncope, result from it, by a want of the due influence of the blood upon the brain. Absorption is promoted; the liquid and solid tissues are taken up with more than usual rapidity, and water is absorbed from the contents of the bowels, and from the atmosphere.

The above is the acknowledged *modus operandi* of blood-letting, by most modern authorities. It is claimed that such an effect will remedy plethora, excessive vascular excitement, sanguineous determination and congestion, hemorrhage, morbidly increased secretion, and other derangements of function, so far as these disorders result from irritation. In inflammation, blood letting is claimed as an invaluable remedy, not only in lessening the force with which the blood is driven to the inflamed part, but impairing those qualities of the vital fluid which powerfully support the morbid process. Another application of depletion is claimed to be proper in the treatment of different forms of effusion and dropsy.

I entertained those opinions myself, and practised accordingly, for a period of 12 years, and was only convinced of a better course, by personal observation and experience, against the overwhelming influence of the popular professional senti-

ment, education, and an inherent prejudice against becoming myself the propagator of what might be deemed a heresy.

The functions of digestion, assimilation and nutrition, through which processes the blood is formed, are suspended by the existence of excessive irritation, inflammation and vascular excitement. Hence the existence of either, necessarily lessens the circulating fluid, by cutting off the source of its supply. Nauseants moderate vascular excitement, promote the secretions, which are suspended, relax the system, equalize the circulation, and thus diminish the force by which the blood is driven to the parts. Topical bathing, and the cold wet pack, readily subdue all excessive reaction. Where then is the necessity for blood-letting, to fulfill these indications? These means are much more natural and rational, and involve no inappropriate depletion. They never become the source of irritation, as it is admitted that bleeding often does. Blood-letting, as a remedy for existing hemorrhage, is obviously improper, and will not be repeated by a practitioner who has employed cold applications, nauseants, &c. Purgatives are efficient means of depletion, almost universally acknowledged by the profession.

The employment of blood-letting, in excessive effusion and dropsy, when in most cases the blood is already too much diluted, is so much better supplied by the numerous other measures indicated to promote absorption, that it scarcely admits of a serious consideration. Such a course is almost uniformly attended with injurious consequences, while other measures often promote a speedy convalescence. Since I have ceased the practice of blood-letting, which has been a period of ten years, my practice has been much more successful and satisfactory.

Increased Secretion.—This is a very safe and efficacious mode of depletion, far preferable to bleeding. Its advantages are, in directly depleting the diseased vessels themselves, evacuating the watery portion of the blood, not only, but also some of its animalized constituents; in producing a greater amount of absorption than bleeding; and in eliminating

noxious matters from the blood. The class of remedies chiefly used are cathartics, diuretics and diaphoretics; sometimes expectorants, emmenagogues, &c. Those used for the reduction of plethora or inflammatory excitement should possess sedative properties.

Indirect depletion is effected by emetics and cathartics, which, by evacuating the contents of the stomach and bowels, prevent the usual amount of solid material from entering the blood.

Temporary abstinence from food is still more efficacious as a means of indirect depletion. If too long continued, however, it induces the very condition we wish to correct; for when the stomach is long empty, the blood draws upon the tissues for support, as a substitute for food, and becoming animalized, it takes on phlogistic properties. The diet in inflammatory diseases should be feebly nutritive, unirritating, and possess no stimulating power. Of such articles, the varieties of gum, starch and sugar, stand at the head; as gum-arabic, slippery-elm, arrow-root, sage, rice water, tapioca, refined sugar and molasses. These should be administered in solution, and may be flavored with some mild refrigerent vegetable acid.

The vegetable kingdom furnishes other kinds of food admirably adapted to this class of diseases. These are albumen, gluten and vegetable fixed oils; and are used as found in nature, associated with the first class, gum, starch and sugars. They are used in the form of oat-meal gruel, boiled rice, panada, &c.

Another kind contain animal principles; are nutritious and but slightly stimulating. These are albumen, fibrin and casein; example of the former is the white of eggs; of the second, basis of muscle; of the last, milk. This class is rather more nutritious and stimulating than the other, and with a view to indirect depletion, is better adapted to the milder forms of inflammation.

2. REPLETION.—This term is the opposite of depletion—an increase in the quantity and richness of the blood. It is de-

sirable in general debility, and wherever the blood is too scanty, or too much diluted. The process is accomplished by using highly nutritious diet, moderate exercise, tonic medicines, &c.

3. *DILUTION* consists in diluting the fluids by the copious use of water. The effect is to relieve irritation or inflammation of internal surfaces, as the mucous membranes.

4. *STIMULATION*.—By this term is meant an exaltation of any or all of the vital functions above the state existing at the time when the stimulant measures were resorted to. It is general or local. Depression proportionate to the degree of excitement results from this process, and inflammation may occur from excessive excitation. We should have these facts in mind in the use of this therapeutical measure.

General Stimulation.—The lowest grade is that produced by astringents. From their property of shrinking or contracting the tissues, they are useful in the suppression of excessive discharges, and to promote strength. Care should be taken not to carry the process so far as to interfere with the function of the part.

The next higher grade of stimulation is that of *tonicity*—a moderate and gradual increase of the vital functions. It is needed in chronic debility, enfeebled digestion, debility in convalescence, and in all diseases where additional support is needed to conduct them to a favorable termination. Agents used for this purpose are called *tonics*. They may act on the digestive function, enriching the blood, as the chalybeates; or upon the whole system. The cold bath, pure air, wholesome diet, cheerfulness of mind and gentle exercise, have an effect of this kind.

Diffusible stimulation is more rapid, and principally affects the circulation. Adapted to cases of considerable debility, and where active stimulation is indicated.

Nervous stimulants, or *anti-spasmodics*, are useful in all nervous disorders attended with debility, such as spasms, wakefulness, jactitations, &c.

The *cerebral stimulants* are called for in cases of deep

debility, such as spasms, wakefulness, jactitation, mental depression, &c.

The *cerebral stimulants* are called for in cases of deep debility where all the resources of our art are necessary to support life, as in low stages of typhus disease. Alcohol, ether, camphor, &c., are examples; contra-indicated when cerebral congestion or inflammation is an attendant. There is danger of mistaking seeming debility with actual sthenic condition, for pure debility. The application of this process under such circumstances might prove fatal.

When sudden and powerful, but transient stimulation is demanded, as in syncope, &c., ammoniacal remedies to the nostrils, or cold suddenly applied, will produce the effect.

Stimulating food.—Animal substances used freely, as beef, pork, &c., impart stimulating properties to the blood; roasted and fried meats more than boiled.

Local stimulation.—This may be an irritation or inflammation of a part, or merely increased functional action of it. The former is called *revulsion*, and its object is to produce general stimulation by sympathy of the system with the affected part. The agents employed are the rubefacients, sinapisms, escharotics, &c.

Increase of function is required when the surface is pale, dry and inactive, muscles weak, digestion feeble, liver and kidneys torpid and the bowels costive. The means used are friction to the surface, hot bath, cold bath with a view to reaction; emetics, cathartics, diuretics, cholagogues, &c.

5. SEDATION OR DEPRESSION.—This implies diminution of action, and is general, or local. General sedatives may affect the circulation, or the nervous system. The former are called refrigerants; they are indicated in sthenic conditions of the system, with increased circulation and temperature. The vegetable acids, alkaline salts, and cold internally and externally are sedative in their effects. The latter are called *nervous sedatives*. They directly quiet nervous excitement. Gelseminum, digitalis, lobelia, &c., are agents of this class.

Local Sedation is employed to repress local inflammation

or congestion. The agents chiefly used are continued cold, moisture, anodyne fomentations, &c. It is also useful in neuralgic pains and spasms. Fomentations of poppy leaves and flowers, catnip, lobelia, aconite, chloroform, &c., are among the best.

6. REVULSION—DERIVATION—COUNTER-IRRITATION.—*Revulsion* consists in the diversion of disease from one part of the system, by the production of irritation or inflammation in another. *Derivation* may extend to diversion, by a degree of excitement within the limits of health. *Counter-irritation*, strictly defined, signifies revulsive impression. There is, in the human system, only a certain capacity of nervous action, and a certain amount of blood. When either the former or the latter is strongly directed to a particular part, it is diminished elsewhere. Irritants of every kind produce this effect. This principle is very extensively employed in the treatment of disease. It often proves an auxiliary force when the remedy is applied for other purposes, as emetics in spasmodic affections of the air-passages, acting by their relaxing influence; and cathartics for the relief of inflammations and congestions, though generally employed for their depleting power and for the removal of crude ingesta and morbid secretions. Every remedy, which produces excitement in any part, may act as a revulsive. Those usually employed, are external irritants, as hot water, bitter herb fomentations, sinapisms, caustics, &c. Exercise may produce derivation by calling off undue determination to internal organs to the exterior, and thus effecting an equilibrium of vital action.

Great care and discrimination is requisite in the use of revulsives. In determination of blood to a part, as in vertigo, threatening apoplexy, and recurring epistaxis, hæmoptysis, &c., the blood should be diverted to the most distant parts of the body. Hence the use of stimulating foot-baths, sinapisms to the legs, &c. When the disease is fixed, powerful measures should be used nearer the part affected. Revulsives should be employed in metastasis, or in diseases liable to them, to

prevent their occurrence, as in rheumatic, gouty, and eruptive affections.

Never employ highly irritating revulsive measures in inflammatory cases, during the greatest violence of the disease. Such an application may be necessary in cholera and other diseases in which there is severe internal congestion.

7. SUPERSESSION.—This process is the displacing or prevention of a disease by the establishment of another in its seat. It is seldom that two active diseases can exist in the system at the same time. If we can produce a new disease in the exact place of the one existing, we may possibly supersede the latter; and if this new disease subside spontaneously without injury, we cure our patient. The operation of very many remedies is explained in this way.

It is thus that powerful anti-periodics cure intermittents by establishing their own morbid impression, in the absence of the paroxysm. The system, thus occupied at the moment when it was to return, is incapable of admitting it. In the same manner, emetics, or many active agents, if in full action at the time, cure paroxysmal diseases.

Mental influences are powerful in superseding intermitting and continued diseases, when only functional. Thus strong faith in any remedy, frequently performs the cure. I knew a Mrs. Wright, in Ohio, who had suffered from fever and ague three months, who bored a hole in a maple tree, recited a German ceremony, plugged up the aperture with the disease in it, and had it no more. This readily explains many cures. Make a patient really believe you can cure him, and often the cure is half effected.

The same law holds true in purely local disease. Many cutaneous eruptions and diseases of mucous surfaces of the urinary and alimentary passages, yield to supersession, by direct applications to them.

8. ALTERATION.—This is a change of morbid actions or states without any perceptible change upon the system. Medicines which do this are called alteratives. They may change the character of the blood or solids; and sometimes their pre-

cise action is unknown. Cures are often ascribed to medicines, which are due to nature. The term alterative is one conveniently employed in classifying those remedies whose mode of action we little understand.

Examples of their action are afforded by the use of iodine, cod-liver oil, &c., in scrofula; corydallis formosa, sarsaparilla, stillingia, &c., in syphilis; colchicum, guaiac, sanguinaria, &c., in rheumatism.

9. **ELIMINATION.**—This is the process by which noxious substances are separated from the blood and solids. Agents used for this purpose are those which stimulate the secretions, causing separation from the blood of the offending matter, or such as exert an influence on noxious substances deposited or incorporated with the tissues, so far changing their condition as to enable them to be carried into the blood and thrown off by the emunctories. The former are cathartics, diuretics, diaphoretics, &c. The latter act chemically, and will be mentioned as a distinct therapeutical process.

10. **CHEMICAL INFLUENCE.**—There are three reasons for employing substances which act chemically. 1. For the destruction of tissues, as the removal of fungous growths, ulcerated surfaces, formation of issues, &c. 2. To neutralize foreign substances within the body, as excess of acid in the stomach, blood and urine. 3. For the production of such change in noxious substances existing in the tissues, and not removable by the ordinary powers of the system, as will enable them to be thrown off; as when iodide of potassium causes the elimination of lead and mercury from the system.

11. **MECHANICAL INFLUENCE.**—This is often of great importance in treating disease. Position of the body may favor or counteract the flow of blood to a part, by the agency of gravitation. When syncope is threatened from want of the due pressure of blood upon the brain, by placing the patient in a horizontal position the pressure is secured, and the apprehended result prevented. The object is generally to diminish congestion or inflammation in a part; and this is done by elevating the affected part above its usual position. Thus an

inflamed limb should be raised, and not suffered to remain in a dependent position.

Compression is another valuable mechanical process, which may be employed to diminish or increase the quantity of blood in any portion of the system. Pressure upon an artery will cut off the flow of blood to the part which it supplies; or direct and equable pressure upon the capillaries will empty them. In chronic inflammation and passive congestion, much good may be done by making pressure upon the capillaries. Pressure upon a venous trunk, causes an accumulation of blood in the branches which supply it. Compression in the form of bandaging is often very beneficial to promote absorption in cases of œdema of the limbs, and to support the returning circulation in varicose veins of the legs, and to the abdomen after tapping.

Distension sometimes stimulates a part to increased action, as when large liquid enemata are thrown up the intestines. It must not be carried too far, so as to produce paralysis of the muscular fibre, and prevent contraction.

Friction is another mechanical remedy of great importance. It acts by stimulating and compressing the parts. It is often highly useful in low forms of disease, to arouse and support the sinking vitality in the circulation and debilitated parts. It is most useful in producing revulsion from the internal to the external parts.

Covering and thus protecting surfaces from the irritating influence of the atmosphere and exciting substances, is a very useful mechanical process. Inflamed mucous surfaces are protected by demulcents; the skin by collodion, cataplasms, plasters and cerates. Where the cuticle has sloughed, in case of a superficial scald, sweet oil protects the surface from the highly irritative effects of the atmosphere.

NOTES ON PRACTICE.

PART II.

SPECIAL PATHOLOGY AND THERAPEUTICS.

For convenience of description, I shall divide diseases into two great classes, *general* and *local*. The *first* includes those which affect the whole system at the same time; the *second*, those which affect some particular function or structure, in which the constitutional phenomena are only secondary.

An immense amount of time has been expended in forming systems of nosology. They are all imperfect, because we do not sufficiently understand diseases to clearly see all their mutual relations. Hence systems founded on such a basis have always been subjected to changes. I shall adopt the most convenient plan by which I can explain what is positively known,—a plan based upon the seat of disease.

Diseases which are situated in the same parts, I shall place together, and form distinct groups in each division, of those which bear the closest analogy. In reference to their seat, diseases may be divided into three classes: 1. including those which occupy the whole system at once; 2. constitutional diseases, which show themselves in local disorder in a part, or several parts, but not in the whole at the same time; 3. all proper local diseases, or those which affect some particular function or structure, and in which the constitutional symptoms are merely secondary.

CLASS I.

GENERAL DISEASES.

Fevers are the only affections which strictly belong to this class, for, in no other, not even chronic disorders, does the whole system become diseased, until the latter stages. In symptomatic fevers, it is the inflammation which constitutes the disease, and the fever is only dependent upon it. Those diseases which consist of inflammation, are called *phlegmasiæ*, and are ranked with those of the organ in which they are seated.

I shall place in this class all the cases of fever in which their causes act only as a simple irritant. This comprises all the idiopathic, and exanthematous, or eruptive fevers, and to these I may add glanders, or equina, and dengue, or a peculiar kind of erratic rheumatism.

Article I.

IRRITATIVE FEVER.

This is a simple fever, which may arise from any irritating cause. Its duration is usually short,—from one to six days. If it continues longer, some local inflammation will probably be developed. It shows a tendency to remit, but may intermit. *Infantile remittent* is often the same disease.

Symptoms.—Languor, weariness, &c., succeeded by a chill, and febrile reaction. Sometimes it begins with a chill; at others the chill is absent. There is usually a hot, and dry skin, frequent pulse, quickened breathing, furred tongue, headache, loss of appetite, thirst, constipation, scanty urine, &c. In infants it may commence with convulsions, though not common; and, in them, there may be drowsiness even approaching to coma, rendering it liable to be mistaken for hydrocephalus.

Causes.—Any cause producing irritation. In children, teething, crude ingesta, worms, &c. Hence it has been called *worm fever*. There appears to be a predisposition to it in many cases, which may consist in an altered state of the blood; and if so, it alone might cause the fever, without any other cause.

Treatment.—This is very simple in ordinary cases. Generally an efficient cathartic, with topical bathing, followed with a refrigerant diaphoretic, and proper regimen, are sufficient to secure convalescence. An emetic is indicated if the stomach is loaded with undigested food. In children, apply cold to the head, and if there is evidence of worms, administer a vermifuge, followed by suitable doses of gelseminum, in catnip tea, at proper intervals, to allay nervous excitement, which is usually present. A warm bath, with small doses of lobelia, are excellent remedies in convulsions of infants which often occur. If they cannot swallow, administer the latter in an infusion of catnip, per rectum, and the convulsions will immediately cease. Cold demulcent drinks are useful to allay mucous irritation, in all cases. A cold pack is highly useful for children and adults, when the skin is hot and dry, with quick and frequent pulse. The head and shoulders should be elevated, if the brain suffers from congestion.

Article II.

MIASMATIC FEVER.

I shall present to you, under this name, all the forms of fever resulting from the influence of marsh miasmata. For the nature, production, and mode of operation of these agents, see page 67.

I have arranged them under three divisions: 1. *Intermittent fever*; 2. *Remittent fever*; and 3. *Pernicious, malignant, or congestive fever*, which may be either intermittent or remittent.

INTERMITTENT FEVER.

SYN.—*Fever and Ague.*

This is characterized by paroxysms of fever recurring at stated times, and by the absence of fever during the intermissions. The type of the fever has reference to the length of the interval. There are three ordinary types; the quotidian, tertian, and quartan.

1. The *quotidian* occurs every day, and continues ten or twelve hours.

2. The *tertian* comes on every other day, lasting five or six hours.

3. The *quartan* comes on every third day with an interval of seventy-two hours. The paroxysm is short, and composed mostly of the cold stage.

We have also *double quotidians*, having two paroxysms in a day. *Double tertians*, where it occurs at different hours every day. When two paroxysms occur in one day and none the next, it is called *duplicated tertian*. *Triple tertian* where there are two paroxysms every other day, and one the intervening day. In *double quartan*, two out of three days have each one paroxysm, and the other, none. Of all these varieties, the double tertian is the only one which often occurs. Besides these varieties, we have *quintans*, *sextans*, *octans*, &c., which are very rare.

The *interval* of an intermittent is from the commencement of one paroxysm to the beginning of the next; the *intermission*, or *apyrexia*, is from the end of one paroxysm to the commencement of the next. I have noticed cases in which the paroxysms were altogether irregular.

Symptoms.—When regular, an intermittent consists of three stages.

1. *Cold Stage.*—After some yawning, stretching, &c., the patient experiences chilliness, especially of the limbs, and running along the back, followed by constriction of the whole body; the nails are blue, skin rough (*cutis anserina*), violent shivering, chattering of the teeth, headache, back-ache, quick,

small pulse, præcordial oppression, and sometimes vomiting.

2. *Hot Stage*.—The passage from the cold to the hot stage is not abrupt; beginning with flushes of heat, which gradually increase, alternated with chills, till the skin becomes very hot and dry. The first sensations of warmth are rather agreeable than otherwise. A glow is first felt about the face, and the patient is conscious of increased heat of the breath. The face becomes flushed, the temples throbbing, the pulse full and frequent. Sometimes there is moderate delirium, and always severe pain in the back and limbs. Convulsions are not uncommon in children. In some instances there is a petechial eruption, which disappears with the fever. The duration of the hot stage is from two to eighteen hours, or more, before it begins to abate.

3. *Sweating Stage*.—Perspiration generally begins on the head, face and breast, and gradually spreads over the surface of the body. It is sometimes slight, but generally copious; and the urine deposits a copious lateritious sediment. The skin cools, the mouth moistens, headache disappears, the patient often falls into a calm sleep, from which he wakes free from fever.

In uncomplicated cases, the patient feels well, but weak, till the next recurrence of the paroxysm. At times one of the stages is wanting—for instance the cold stage; this form of the disease is called a *dumb ague*. Sometimes the fever is wanting, or neuralgic pains are substituted for it. The sweating stage may also be absent, or supplied by copious urination, or diarrhœa.

Intermission, or apyrexia.—General languor, facility of fatigue, pains in the back and loins, uneasy sensation in the epigastrium, with some fur on the tongue, and a feeble appetite, are frequently left, after the paroxysm, in a greater or less degree. The patient is apt to have a pale or a sallow complexion, and a sickly appearance. Cases may occur in which the patient is free from all signs of disease during the intermission.

Course, termination, &c.—In several types the paroxysm

returns at a regular hour. It may occur one, two, four or six hours earlier; it is then called *anticipating*, and the patient is worse. It may come on the same amount of time later, when it is termed *retarding intermittent*, which is favorable. The paroxysm seldom occurs during the night. Sleep may be favorable to its resistance. In most cases it occurs between 8 in the morning and the same hour in the evening. A change of type sometimes takes place suddenly. Quotidians are apt to return in one week, tertians in two weeks, and quartans in three. The liability to a return of this disease often continues from one to two years.

Effects.—It will leave none if suddenly checked, but if allowed to run it will produce *enlargement* of the spleen, liver, &c., and it may cause consumption, or dropsy.

Anatomical characters.—In fatal cases, inflammation of the brain, and its membranes, cerebral congestion and effusion, gastritis, gastro-enteritis, pulmonary inflammation and congestion, and various diseases of the liver and spleen, have been observed.

Causes.—Marsh miasmata are the essential causes, though cases often occur not traceable to this cause. The disease does not proceed from lands which are inundated so much as those which *have been* flooded and are drying. The disease is more severe in hot climates than in temperate—in low situations than in high; the upper stories of a house being more healthy in malarial districts, than the lower. It is carried about by winds, and is more dangerous by night than by day. Persons exhausted by fatigue, intemperance, or illness, and those exposed to the influence of cold, are more liable to its attacks than the healthy; these, therefore, are predisposing causes. Temporary irritation, as from indigestible food in the stomach, worms in the intestinal canal, the introduction of instruments into the urethra, &c., are often both the predisposing and exciting causes of the disease.

Diagnosis.—It is only liable to be confounded with hectic and remittent fever. Hectic may be distinguished from it by the irregularity of its recurrence, absence of headache, ex-

cessive and prolonged night sweats, clearer complexion and eyes, want of fur on tongue, and continued frequency of pulse. Remittent fever is only distinguishable by the continuance of fever between paroxysms, and it is sometimes difficult to classify the disease.

Prognosis.—If uncomplicated, and not malignant, it is free from danger. I knew a man who appeared quite well in the morning, was at work, ate a hearty breakfast, was attacked with his third chill that day at 10 A. M., and died at 4 P. M. Post mortem revealed deep congestion and effusion of the brain. If inflammation or congestion of any of the vital organs occurs, danger may be apprehended in the stage of reaction. Fatal congestion of the spleen has occurred. The chief danger is in suffering it to continue until secondary diseases result; such as chronic splenitis, hepatitis, jaundice, dropsy, &c. The quartan is the most difficult to cure.

Treatment.—This disease should be cured as speedily as possible, and with simple and harmless remedies. Various articles, either in the simple form, or in different modes of combination, generally afford immediate relief, and it is difficult to say which are the best among the many within my knowledge and experience. Sulphate of quinine 24 grs., tinct. gentian 1 oz., syrup of ginger 4 oz., sulphate of magnesia 1-2 oz., muriatic acid 15 drops; shake it, and give one teaspoonful every 2 hours during the intermission. This succeeds in arresting the disease within 48 hours, in all uncomplicated cases, without emetics or cathartics. The remedy should be continued until the patient has his accustomed strength and appetite. The torpor of the liver and other secretory organs, caused by the miasmata or other morbid agents, is remedied with this stimulant tonic, by exciting the organs to resume their functions, and regular secretion and excretion result.

Another reliable process is to administer extract of lobelia and eupatorin, *aa*, about two hours before the expected chill, so that the nervous system of the patient will be thoroughly pre-occupied by their influence when the paroxysm arrives. The extracts may be taken in the form of 3 grain pills, one of

which should be given every 15 minutes, followed with warm infusion of ginger and eupatorium. This will induce a free perspiration, and hold the circulation in an equalized condition. Thus will the anticipated paroxysm be prevented in most cases, and it will be greatly mitigated in all of the common types of the disease. After tolerably free emesis is induced, and the nausea is kept up until two hours beyond the time of the expected attack, then give 1 dr. of the common anti-bilious physic, or enough to produce free catharsis.

Then the patient should be thoroughly bathed in warm salt and water and wiped dry with a crash towel. During the intermission, give sulphate of quinine and prussiate of iron, of each 3 grs., mixed, every two hours. This treatment will almost certainly prevent the recurrence of another paroxysm. After this, the patient should take a dose of good tonic bitters, or else of the anti-periodic just named, before each meal, for one or two weeks, which with suitable attention to diet and physical habits generally, will secure the system against a recurrence of the disease.

If called in during a high stage of fever, and the patient has severe pains, headache, hot and dry skin, and is delirious, the best remedies are the cold saline pack, nauseants, and cold applications to the head. This will soon moderate the fever, induce perspiration, and afford most satisfactory relief. If there is excessive vomiting, and tenderness at the epigastrium, apply a sinapism over the stomach. If the extremities are cold, place sinapisms to the feet, and perhaps to the ancles and calves of the legs.

Cheaper remedies are often used with marked success; as common salt 1 oz., tinct. gentian 1 oz., syrup ginger 4 oz., ess. peppermint 1-2 oz.; shake and give one teaspoonful every two hours, during intermission. Or the juice of common milk-weed, in 1 dr. doses, every two hours, between exacerbations; or a strong infusion, tincture, or extract of eupatorium, taken as the stomach will bear, every two hours during intermission, are very sure and excellent remedies. In domestic practice, I have often known two eggs put into 1 pint

of vinegar, and let stand till the shells were decomposed, and a table spoonful taken every two hours during intermission, effect permanent cures after other measures had repeatedly failed. I have frequently known a strong infusion of the bark of the "shag bark" walnut do the same. Numerous other useful remedies might be named, as almost any bitter tonic; but a sufficient variety has been named for all ordinary purposes.

Complications with other diseases, should be treated as the nature of the local disease in each case requires. Enlargements of the spleen are best reduced by the internal and external use of common salt. One dr. 3 times a day, internally, and a saline bath once a day, until the "*ague cake*" is removed, is the proper course. If there is enlargement or habitual torpor of the liver, leptandrin, podophylin and extract of dandelion, in suitable doses and intervals, with revulsives, are the best remedies.

Masked ague.—*Brow ague.*—*Nervous ague*, &c.—In miasmatic districts, a severe pain over the eye or elsewhere may occur in the form of an intermittent. So severe is it in many cases that the patient becomes perfectly frantic with agony. In such cases the morbid cause seems to spend its force upon the nerves of the part affected. I have known the same disease to affect the stomach and bowels, producing violent vomiting, griping, and diarrhœa, similar to cholera morbus, once in one, two or three days, and lasting about the time of a regular paroxysm of an intermittent, leaving the patient greatly prostrated.

Treatment.—In the stage of pain in the brow, stomach, side, uterus, or elsewhere, use anodyne fomentations, containing a small quantity of flour of mustard, over the affected part, with sinapisms over the nape of the neck and spine. Give nervines internally. During the intermission use the ordinary periodics, preceded by an emetic or cathartic, if needed. If the disease attack the stomach, or bowels, or both, use the ordinary means to allay excessive vomiting and purging, and the anti-periodic during intermissions, keeping the patient under the influence of mild and pleasant nervines.

REMITTENT FEVER.

SYN.—*Bilious Fever.*—*Bilious Remittent Fever.*

In this form of fever the febrile phenomena evince striking exacerbations and remissions, one paroxysm occurring in twenty-four hours. There is never a complete intermission, as in intermittent fever; and this is generally the distinguishing symptom between these two affections. The nervous system is more affected in this disease than in intermittent. The cause is essentially the same—marsh miasmata. It is common in all parts of the United States, and prevails in the neighborhood of marshes, low lands, borders of streams, and on the western prairies. It occurs most frequently in the summer and autumnal months, though its appearance in other seasons is not uncommon.

Symptoms.—The symptoms which precede the stage of invasion, are similar to those of the intermittent form—general lassitude, weight and fulness in the epigastrium, pains in the back, limbs and head, disordered appetite, and restlessness at night. This preliminary stage continues for several days.

The disease commences with chilliness, rarely amounting to a shake; pale face, and the lips purplish; pulse small, depressed and often irregular; occasionally nausea and vomiting are present, and pain in the loins and extremities. The chill is shorter and less severe than in intermittent fever, usually lasting not more than fifteen or twenty minutes. This stage is soon superseded by that of febrile reaction; the patient feels uncomfortably hot, skin hot and dry; pains in the head, back and limbs become aggravated, face flushed, pulse increased in frequency, and becomes full and hard; mouth dry and clammy; tongue white and yellowish; thirst urgent, bowels constipated, urine scanty and high colored; severe throbbing head ache, sometimes delirium, tenderness of the epigastrium, bilious vomiting, and great muscular weakness. The patient is restless and wakeful. When not delirious, he is sensible of muscular weakness.

These symptoms continue from ten or twelve to eighteen hours, when perspiration breaks out; the pulse falls, delirium disappears, irritability of the stomach subsides; there is a remission or abatement, but no intermission of the fever. The remission is exceedingly variable in duration; it lasts from two hours to a day, as the type is either quotidian or tertian. The next paroxysm is without any chill, runs the same course and ends in like manner, each exacerbation becoming more severe and protracted, and each remission less decided.

The symptoms become more violent, remissions disappear; skin dry and harsh, or moist and clammy; pulse small and irregular; tongue black and crusted, vomiting and pain in epigastrium almost constant. In the most unfavorable cases, the skin assumes a dark yellowish cast; the bowels become irritable, evacuations watery, greenish, and, at last, almost black; urine scanty, high-colored, or sometimes of a yellowish-brown color; headache intense, attended by vertigo, tinnitus aurium, and delirium.

The disease may run from seven to fifteen days, when it either declines by profuse perspiration or diarrhoea, or a general subsidence of all the symptoms, or else it runs on to a fatal termination.

The *inflammatory variety* is characterized by violent determinations to the brain, at the stage of reaction, and inordinate affection of the mucous membranes in the latter stages.

The *congestive* or *malignant form* is the most severe and fatal of all endemic fevers. The great danger here is, in regarding the remission after the first paroxysm as incipient convalescence, and neglecting the precautions necessary to ward off the next, which may prove fatal.

Anatomical characters.—Inflammation of the stomach and bowels is the most frequent lesion. The glands of Brunner are enlarged, those of Peyer unchanged. The membranes of the brain often show signs of inflammation and congestion. The liver is often enlarged, softened and changed from its natural to a bronze or slate color. The spleen is almost always enlarged and softened.

Complications.—This disease is frequently complicated with inflammation of the stomach, in its earlier stages, and dysentery towards its close. Diseases of the liver and spleen are quite common attendants of this fever. In temperate climates we often find pulmonary affections associated with it; in hot climates, determination of blood to the brain is a frequent complication.

Convalescence.—In mild cases, the recovery is often very rapid; but in severe ones, much organic injury is sometimes inflicted, the vital functions perverted or prostrated, and the course of return to health, is one of protracted suffering.

Treatment.—The first object is to palliate the excessive febrile reaction. For this purpose apply a cold saline pack, completely enveloping the body and limbs in the wet sheets, with cold applications to the head, and soothing diaphoretics to allay nervous excitement. This will calm and comfort your patient, greatly shorten the exacerbation, and tend to lengthen the coming remission.

When the time arrives, and there is evidence of remission, prescribe, for an adult, prussiate of iron and sulphate of quinine *aa*, a three-grain powder every two hours, until five are taken; or, if the fever arises, omit the tonic, renew the pack, &c., as before; then resume the powders at the next remission, and continue them until eight are taken. Generally a subsidence of the fever will occur after twenty-four grains are administered, and sometimes before; and the whole surface freely perspires. For years I have seen but few cases continue after a few doses of the tonic had been taken. Local congestion generally disappears with the fever, or very soon after it, and the patient needs little more to insure recovery.

In the most obstinate cases a similar course, persevered in, will be sure to secure convalescence. Sometimes, when the brain suffers, a sinapism to the neck, spine and feet, may be necessary. If some local disease has been previously seated in the system, the malady will then assume the type of a local affection, and must be treated accordingly, but not as reinitiating fever.

In case of an accumulation of crude ingesta or sordes in the stomach and bowels, an emetic and cathartic are of course proper at the commencement, but not because the liver and bowels are merely torpid. The antiperiodic will destroy the miasmata and stimulate the functions of all the secretory organs to resume their natural action. No injury can arise if given during the febrile paroxysm. An extensive practice for a long course of years, in miasmatic districts, and the treatment of many hundred cases of this form of fever, enables me to speak from experience on this point.

Gastro-intestinal irritation.—If irritation of this kind remains after the fever subsides, manifesting itself by nausea, griping, diarrhoea, with slimy, light-colored stools; epigastric and abdominal tenderness; with a red, moist, clean tongue, I prescribe cold mucilage of marsh mallows, ulmus or gum-arabic, with a diet of rice, barley or wheat flour gruel; or, what is better, a tea of wheat-bran. Apply warm fomentations, as cloths wrung out of an infusion of bitter herbs, containing mustard; or a large sack of wheat-bran wrung out of warm mustard water, sufficient to cover the entire abdomen. It may be necessary to apply sinapisms to the feet, interposing a thin piece of muslin, and allowing them to remain as long as they can be borne.

When these are removed use the saline bath, wipe dry with a rough towel until the functions of the skin are thoroughly excited.

If tenesmus is present, an enema of starch and laudanum will be useful.

Hepatic Disorder.—The liver is occasionally affected, indicated by a dry, furred tongue, dark-colored in the centre, with moist and red edges; skin and eyes, yellowish; urine scanty and dark; clay colored stools, and bowels costive.

This may be a state of hepatic torpor, resulting from an over excited condition of that organ, during the progress of bilious remitting fever, or of congestion of the portal circulation in a high grade of fever.

Now a cholagogue is clearly indicated in the above condi-

tion, and as such you will find none better than,—podophyllin one-fourth grain, leptandrin one-half grain, sanguinarin one-half grain, and taraxacum sufficient to form a pill,—one every six hours until the stools are natural. If the actions become too frequent give three grains of the anodyne diaphoretic powder every night, at bed time, and reduce the quantity or frequency of the dose of cholagogue. A dose of the quinine and iron should be alternated with the pill, every six hours, and revulsive measures used, such as topical saline bathing, and frictions every morning and night.

Determination to the brain often occurs early in the disease, or supervenes later in the case, indicated by great heat and pain in the head, dilatation of the pupils, dulness of sight and hearing, with delirium, and possibly a tendency to coma.

To relieve this condition, the head and shoulders should be slightly elevated, an evaporating lotion, as alcohol and water, *aa*, with a little sulphuric ether added, should be constantly applied to the head, and the patient fanned.

Also, sinapisms to the nape of the neck, upper portion of the spine, calves of the legs, and feet, with bottles of hot water to the latter. The bowels should be kept freely open, but any irritating purge will react most unfavorably upon the brain. The surface should be bathed in warm mustard water, followed by frictions of the surface, sufficient only to render it lively and active. In this manner I have been able to relieve all cases of the kind, where organic lesion had not occurred.

Infantile Remittent is precisely the same affection already described in the adult, and should be treated in a similar, although in a much milder manner.

During a practice of twenty-five years I have never had the misfortune to lose a single patient in remitting or bilious fever. I therefore recommend the foregoing or a similar course of treatment, judiciously applied, having great confidence in its efficiency, harmlessness and adaptation to the physical system.

PERNICIOUS FEVER.

SYN.—*Congestive Fever.*—*Pernicious Intermittent.*

This modification of miasmatic fever is characterized by great and sudden prostration of the nervous power. It may be intermittent, remittent or continued. It is only, however, when of two or three days duration that it can be called continued, for if the disease persist it will almost certainly become paroxysmal. It is most frequently intermittent, generally of the tertian type.

In some cases the organic functions are most affected; then the evidences of disease are presented chiefly in the organs of digestion, respiration, circulation, calorification and secretion. In other cases the animal functions suffer, and the brain is the organ most affected. When the organic functions receive the morbid impression, it may fall upon the heart, alimentary canal, or upon the surface of the body, either in its function of calorification or secretion.

It varies in its form and time of approach. It may be like an ordinary intermittent, or have its own peculiar features; and it may occur at any hour of the day or night.

Symptoms.—When the cold stage is fully formed, and exists primarily in the organic functions, the face and hands are of a livid paleness, the features shrunk, the expression anxious, skin shrivelled like a washerwoman's, the extremities, trunk, and sometimes even the breath, are cold. The surface is, at times, moistened with a clammy perspiration, or bathed in a profuse sweat. The tongue is cold and pale, sometimes dry, or unaltered; tenderness of the epigastrium, internal heat and intense thirst. The pulse is small, irregular, sometimes corded, but oftener feeble, fluttering, and sometimes intermittent. It is almost always frequent,—120 to 160 in the minute. Added to these symptoms there is great restlessness, the patient often attempting to leave his bed.

The paroxysm varies in its duration, from two or three hours to as many days. The reaction which comes on is gen-

erally in no degree equal to the amount of the preceding depression, and convalescence seems about taking place. At other times a slight fever remains; it is only a remission; and again it may approach nearly to an intermission.

If arrested, the same train of symptom comes on the next day, or day after, with increased violence, and the second paroxysm often proves fatal, though a third may occur before death closes the scene.

Sometimes the heart is the chief organ implicated; then prostration of the circulation exhibits the principal phenomena. Coldness may be in excess, or an ordinary intermittent paroxysm runs its course and ends in an exhausting perspiration, during which the pernicious symptoms appear. When the animal functions suffer, the paroxysm begins with drowsiness, confusion, loss of memory, passing into a deep coma, or an apoplectic state, with stertorous breathing; pulse full, either slower or faster than natural. Convulsions may occur, and delirium precede coma.

Cause.—This is unquestionably the same as that of common intermittents and remittents; but there may be a greater susceptibility to the influence of the poison, or it acts more intensely. The danger consists in a want of *innervation* and not in *congestion*. This disease prevails most in the low lands skirting rivers, while ordinary bilious fevers are apt to occupy the table lands.

Prognosis.—Very unfavorable; three-fourths of the patients not skillfully treated, die, and occasionally whole settlements are swept away by the disease. The danger may usually be averted, during the first or second paroxysm.

Treatment.—The plain indications are to counteract the morbid poison, to arouse the sinking vitality of the nervous system and equalize the circulation. Hence antiperiodics, stimulants and revulsives are the remedies. If called during the paroxysm, the urgent indication will be to promote reaction as soon as possible. Administer quinine, prussiate of iron and capsicum, 2 grs. each, every two hours, and composition tea freely. Apply sinapisms to the spine, thighs, calves of

the legs and soles of the feet. Use active frictions upon the surface with dry flannel and cayenne pepper, or mustard, and keep the surface of the body and limbs secluded from the atmosphere, while the room should be well ventilated, to favor respiration. Continue this course until the paroxysm subsides.

If the stomach be loaded, a stimulating emetic is proper. Eupatorium and lobelia, half an ounce of each, steeped in one pint of water, giving one table-spoonful every fifteen minutes, followed by composition tea, is the best. If there are diarrhoea and tenesmus, administer enemas of starch and laudanum.

Spirits of turpentine, fifteen drops every half hour, in mucilage gum arabic, is one of the best stimulants in this disease. It permeates every tissue of the body and awakens all the secretory functions to action. It is also very efficient in allaying the irritability of the mucous surfaces of the gastrointestinal canal.

During the intermission the antiperiodics should be given, to prevent a recurrence of another paroxysm. A speedy convalescence may be anticipated, under the usual tonic and regimenial course, proper in recovery from intermittents, &c.

MILK SICKNESS.

SYN.—*Sick stomach.*—*Trembles.*—*Slows.*

This is a peculiar, strongly characterized endemic disease of several localities in the west.

There are two varieties met with in practice—the acute and chronic. The former is called *milk-sickness*, the latter has received the expressive title of *slows*. These are the same disease, differing only in degree.

Symptoms.—In the subacute or chronic form the patient is languid and inactive, bowels torpid, appetite impaired, palpitation of the heart, nausea from slight exertion, &c. These symptoms continue a variable period, and unless removed by

suitable measures, the disease merges into the acute form. The individual is suddenly seized with extreme nausea, vomiting and prostration; temperature of the body and limbs diminished; skin cold and clammy; anxious countenance, fœtid breath, tongue slightly coated and swollen, bowels constipated, strong pulsation over the abdomen, especially at the right of the umbilicus; cephalalgia, tinnitus aurium, &c. The matter ejected from the stomach is of variable appearance, sometimes colorless, sometimes like soap-suds, at others like indigo, and in fatal cases is of a dirty brown color. As the malady advances, sharp pains in the back and limbs, and acute gastric pains come on, attended with heat and burning at the præcordia, and intense thirst; the pulse increases in frequency, vomiting becomes more violent, so that every article, solid or fluid, is ejected. This excessive irritability of the stomach continues throughout the disease. When coma occurs after vomiting, it is a fatal sign.

Nature, cause, &c.—Of these little is known. The disease is supposed by some to be a variety of bilious fever; others of congestive fever, generated by a peculiar atmospheric miasma. It prevails in certain locations at the west, while neighboring localities are exempt. Wherever it prevails in the human species, the lower animals are affected with a peculiar and fatal disease, called *slows or trembles*; and it has been supposed that in man the disease was produced from some specific poison obtained from the milk or flesh of animals that had fed on these infected lands. Numerous experiments sustain this theory.

When the disease is overcome by proper treatment, the heart and large arteries return to their natural pulsations, the irritability of the stomach subsides, temperature of the skin becomes natural, and after a thorough purgation the patient rapidly recovers.

After death the spleen is found dark and congested, the brain softened, and the blood uncoagulated.

Treatment.—Although this is a formidable disease, the treatment is simple. The neutralizing mixture given in doses

of a table-spoonfull, every half hour, or hour, is the best remedy to allay vomiting. After the sickness at the stomach subsides, give a full dose of the anti-bilious physic. Sinapisms over the stomach, and to the feet, are proper, with stimulants and frictions to the surface generally.

If the vomiting proves obstinate, the bowels should be moved by stimulating enemata; the vomiting will generally subside as soon as thorough alvine evacuations are secured. If the patient be thirsty, allow him to hold in his mouth, and even swallow small pieces of ice, but no water, as the latter will be ejected. The ice is much more acceptable to the patient, and one of the best means of allaying gastric irritability. I have often succeeded with this when all else failed. The recovery from this disease, is usually very rapid. The patient is sometimes able to resume his ordinary avocations in a day or two.

Article III.

YELLOW FEVER.

SYN.—Typhus Ictericus.—Bilious Fever.—Vomito Negro, Vomito Prieto.

This is a disease of warm climates, depending upon a special cause, occurring mostly during the summer months, and ceasing on the appearance of frost. It is met with chiefly in cities and large towns upon the seaboard.

Symptoms.—The *first stage* is generally ushered in with giddiness, chilliness and severe pains in the back and limbs. After febrile reaction is established there is severe pain in the head, skin hot and dry, intolerance of light, eyes red and watery, respiration hurried, great thirst, tongue at first moist, and covered with a yellowish-white fur; pulse variable, sometimes slower than natural, at others as high as 120 or 130; either extreme indicates great danger. There is uneasiness and sometimes tenderness at the epigastrium, nausea and vomiting, constipation, &c. As the disease advances, the pain in the limbs becomes aggravated, especially in the lower extrem-

ities. This stage lasts from a few hours to three days; the shorter the duration, the more violent the disease.

In the *second stage*, or *stage of remission*, the symptoms all abate, except vomiting; and the patient seems to be convalescent; the abatement is owing to exhaustion of the powers of the system; but there are symptoms present which warn the practitioner of the continuance of the disease. The epigastrium is even more tender upon pressure than before, the skin becomes yellow or orange color, the urine assumes a yellow tinge, and the pulse becomes much depressed. This stage lasts from twelve to thirty-six hours.

After a short time the vomiting is renewed, and the peculiar substance called *black vomit* is ejected. This is the *third stage*, or *stage of collapse*. The tongue becomes dry, brown and chapped; great prostration, passive hemorrhages, and suppression of urine. The pulse sinks, respiration sighing, the bowels discharge a green or black matter, the surface becomes of a dirty yellow color; and finally delirium, hiccough, coma, insensibility, convulsions and death.

Anatomical appearances.—The stomach presents traces of inflammation; its mucous coat either reddened, thickened, softened or eroded. The peculiar matter called *black vomit* is probably blood altered by admixture with the acid secretion of the stomach. The brain sometimes shows signs of congestion. The liver is altered in color and consistence, being darker and harder than natural.

Cause.—The cause is a specific one, but its precise nature is unknown. Heat and filth, or marsh miasmata, cannot produce it independent of other causes.

Acclimated persons are seldom attacked, which distinguishes it from the malarial fevers. The predisposing causes are intemperance, excessive fatigue, exposure, sudden changes of weather, &c. The opinion of medical men, generally, is that it is not *contagious*.

Diagnosis.—At first it is difficult. Soon, however, the severe pains in the back and limbs, the irritability of the stom-

ach, yellowness of the skin, and finally the black vomit, are enough to indicate the disease.

Prognosis.—The character of the epidemic, the severity of the symptoms, and the circumstances of the patient, must determine the prognosis. Suppression of urine, with great prostration, is a fatal sign. Strangury, however, is favorable.

Treatment.—Very few cases of this kind occur in which a gentle emetic is not primarily indicated. It will remove all irritating matters from the stomach, arouse the nervous system from that state of innervation caused by the morbid poison, promote the action of the liver and other secretions, by the mechanical and revolutionary action of vomiting, determine the blood to the surface, and prepare the system for other remedies. An infusion or extract of eupatorium and lobelia is preferable to any other kind of emetic, for the promptness and efficiency of its action, and its soothing influence upon the system. Emetics are only proper in the early stage of the disease.

In this form of fever when the skin is very dry and hot, with constipated bowels, there can be nothing better or more acceptable to the patient than the cold saline pack, after first administering a cold infusion of eupatorium, per rectum. This course acts like a charm in allaying the intense febrile reaction, the severe pains in the back and limbs, and in equalizing the circulation, thus protecting the system against fatal local congestion.

The intense thirst and gastric tenderness and irritability are best relieved by frequently swallowing small pieces of ice. No other remedy within my knowledge is so reliable, harmless, and yet so efficient. At the same time, quinine and prussiate of iron, *aa*, in doses of from four to six grains, once in two hours, should not be omitted, to destroy the peculiar morbid poison which may be the cause of the disease.

The pack should be removed once in two or three hours, and the patient wiped with a towel, and rubbed smartly with the hand over the entire surface. Then repeat the enema and pack, continuing this course until the fever is subdued. Cold

evaporating lotions to the head are required to relieve the pain and functional disorder, and avert the danger of organic lesion of the brain. If there is a strong determination of blood to the head, attended with delirium, apply sinapisms to the spine, and extremities, and bottles of hot water to the feet.

When the exhaustion is great, with a tendency to a typhoid state, brandy, ammonia, and beef tea, should be administered freely by the mouth and per rectum. In both the acute and chronic forms of this disease, alcoholic stimulants can be taken in large quantities, without producing intoxicating effects, and are often important remedies.

A strong infusion of galls, or tannic acid, has often been found efficient in neutralizing the morbid poison. Hence, either of these combined with the tonic, or separately, and judiciously administered, may prove of essential service in treating this disease.

Article IV.

ENTERIC, OR TYPHOID FEVER.

Syn.—Common continued fever.—*Typhus militior.*—*Nervous fever.*—*Abdominal typhus.*—*Entero-mesenteric fever, &c.*

The term *Typhoid*, as commonly applied to this disease, is objectionable, in as much as it expresses only a condition common to many other disorders.

Symptoms.—The premonitory symptoms are a sense of weariness, languor and general uneasiness, slight headache on rising in the morning, dulness of intellect, irregular alternations of heat and chilliness, furred tongue, impaired appetite, and a disposition to diarrhœa. These symptoms may continue for several days, or until the occurrence of a distinct chill, followed by fever, announcing the—

First stage.—The pulse increases in frequency until it ranges from 90 to 120; though ordinarily it is under a hundred; headache increases, eyes dull and heavy, pain in the back and

limbs, restlessness and isomnia ; epistaxis and yellow, watery diarrhœa.

As the disease advances to the *second stage* the symptoms are aggravated, pulse more frequent and strong ; skin hot and dry, tongue dry, and red at the tip ; tympanitis, with pain in the right iliac region, and a gurgling sound on pressure. Symptoms of pulmonic inflammation are apt to appear about this time.

A characteristic eruption may be discovered, by a close examination upon the abdomen, about the ninth day, consisting of small round rose colored spots, about a line in diameter, disappearing on pressure. About the same time small vesicles will be detected upon the neck and chest, called *sudamina*.

At this period all the symptoms are aggravated, marking the *third stage*. There is delirium, ringing or buzzing in the ears ; the eyes are injected, tongue incrustated with a dark coating, which often cracks and peels off, leaving the raw surface exposed ; teeth covered with sordes, &c. The pulse becomes gradually more feeble and frequent, there is low muttering delirium, sliding down towards the foot of the bed, subsultus tendinum, involuntary stools, hemorrhage from the bowels and other mucous surfaces, petechia and vibices upon the skin, with great liability of the skin to slough.

If the disease terminates favorably, however, the symptoms abate, the countenance brightens, the tongue cleans, the pulse lessens in frequency, and the evacuations become more healthy.

Sometimes, in the course of the second week, violent symptoms of abdominal inflammation arise, from perforation of the intestine, and escape of its contents into the cavity of the peritoneum, characterized by intense pain in the abdomen, bilious vomiting, small fluttering pulse, syncope, and coldness of the extremities. It is almost always fatal.

Anatomical characters.—The glands of Peyer are always affected in this disease, producing thickening, softening and ulceration ; this condition is considered characteristic of the affection.

The mesenteric ganglia are often enlarged and softened, and, according to some writers, ulceration of the solitary mucous follicles of the ileum. These ulcerated patches are owing to a deposit of black matter under the mucous membrane, called *typhoid matter*, whose tendency is to soften, causing the mucous coat to give way.

Inflammation of the meninges of the brain, with effusion, hepatization of the lungs, softening of the spleen, liver and kidneys, are sometimes met with. The blood is generally deficient in fibrin.

Cause.—Nothing definite is known on this point. Confined and vitiated air, unwholesome food and crowded assemblies seem to generate the disease. It is probably not contagious.

The disease rarely attacks those beyond thirty; females less liable than males; long residents than strangers.

Diagnosis.—It may be detected by its gradual approach; by the diarrhœa, dusky hue of the countenance, epistaxis, tongue, stupor and delirium, rose colored eruptions, gurgling in right iliac fossa, tympanitis; and the peculiar musty smell when the skin is dry, and acid smell when moist.

Prognosis.—Mild cases not always free from danger, neither should the lowest symptoms be regarded as inevitably fatal. Unfavorable symptoms are, constant delirium, deep coma, stertorous breathing, great subsultus, hemorrhage from the bowels, great prostration, frequent pulse, and excessive tympanitis.

Treatment.—The standard authorities upon this subject show a remarkable discrepancy in their views of the nature and mode of treating this disease. This is a source of deep regret in a malady of common occurrence throughout the world, and which has hitherto proved so destructive in its onward march.

It would seem that the plain indications are to eliminate or neutralize the morbid poison, relieve the patient from its depressing influence, and foster and sustain the vital processes in resisting and throwing off the disease. Any gastro-intestinal inflammation of the mucous surface, or of the glands

of Peyer, which is apt to develope in the progress of the disease, requires careful discrimination and suitable modification of the treatment.

If there is reason to suspect the existence of malarial influence, even though the periodic tendency is slight, tonics should be given. A cold infusion of eupatorium, (the green leaves are best) one table-spoonful every two hours, is an excellent remedy, and free from all objection. The quinine and iron, in two-grain doses, four hours apart, are not objectionable, and often highly useful.

Common salt, both as an antiseptic and antiperiodic, possesses singular virtues in all diseases arising from miasmata, and many other morbid poisons which have a depressing effect upon the nervous system. Hence I always advise the cold saline pack in the stage of high febrile reaction. For ten years last past, in which I have omitted to use mercurials, with which the free use of salt is incompatible, I have prescribed this acceptable article, internally and externally, with the most gratifying results.

When the stage of fever is not so high as to require the pack, bathe or sponge the surface with alkaline water (soda in water is preferred), followed by frictions with a towel, or the hand, or both. When the fever is high, apply the cold saline pack, cold evaporating lotions to the head, fan the face, elevate the head and shoulders, and see that the room is thoroughly ventilated, so that the patient can enjoy the fresh pure atmosphere.

Gastro-intestinal inflammation is a severe complication very common in this disease, characterized by a tender tympanitic state of the abdomen, and especially over the right iliac fossa, the region of Peyer's glands; acid eructations in the stomach, slimy, mucous and sometimes bloody discharges, tenesmus, &c. I have found it best in this condition to clear the prima via by administering a full dose of good castor oil and turpentine, in the proportion of one table-spoonful of the former to one tea-spoonful of the latter, given in cold mucilage. A large cataplasm, composed of pulv. ulmus, lobelia,

and a little flour of mustard, should be applied over the right hypochondrium and changed every four hours, until the patient can bear pressure upon the part with impunity. Urgent tenesmus may be relieved by an occasional enema of starch and laudanum, and cold mucilaginous drinks should be freely used.

The nervous excitement may often be much calmed by the use of an infusion or extract of cypripedium, scutellaria, or articles of a similar character. All irritating medicines internally should be avoided; nor should the patient be allowed to have a stool while in the erect position, while any intestinal inflammation remains. A bed-pan must be used for this purpose.

When cases have been unskillfully treated, the intestinal inflammation sometimes passes into a state of ulceration, eroding the small blood-vessels, and the patient dies of exhausting hemorrhage. In this condition very few, if any, ever recover. Every effort should be put forth to keep up an active state of the skin, and equality in the general circulation. Astringents, such as geranium, white pond lily, tannin, &c., by the mouth and per rectum, should be used to restrain or prevent the recurrence of the hemorrhage. The system should be supported by farinaceous diet, beef tea, &c.

This disease is often mistaken for bilious remittent fever, and treated with active medication, as mercury, tartar emetic, podophyllin and other cholagogues, until active intestinal inflammation is induced. I have often been called in the sequel of such cases, and sometimes where the *treatment*, and not the *disease* if it had been left to its own course, placed the patient beyond recovery. In most cases, however, I have been able to aid the patients in their recovery, through the measures I have recommended to you.

Be always on your guard and careful to discriminate the different phases which this and all other diseases assume, and avoid becoming the *destroyer* instead of the *restorer* of your suffering fellow-beings, who, in time of great peril, look only to you for benefit and relief.

Article V.

TYPHUS FEVER.

SYN.—*Typhus Gravior*.—*Spotted Fever*.—*Jail, Camp and Ship Fever*.—*Putrid Fever*.

The terms *typhus*, *typhous*, and *typhoid*, are frequently used vaguely, and they require explanation.

Typhus is applied to a specific febrile disease. *Typhous* and *typhoid* signify a resemblance to typhus fever. They are applied to other disorders which have assumed a low condition; thus we speak of *typhous dysentery*, *typhous pneumonia*, &c.

Symptoms.—The skin is hot and dry; the heat of that pungent, biting character, called *calor mordax*. The pulse is full, frequent, and of some strength, yet easily compressed; the tongue is moist, and covered with a yellowish-white fur; sometimes there is nausea and vomiting; the bowels are uniformly costive. The patient bears a very peculiar aspect; the face is of a dusky hue, with the eyes injected, and the features are fixed and inexpressive, or show only apathy and indifference.

As the disease progresses, the symptoms increase in violence; heat of skin augments; pulse becomes more frequent, and lessens in force, ranging from 120 to 140 or 160. Respiration is frequent, feeble, and imperfect, at the back and lower part of the chest, which is dull on percussion.

From the fourth to the eighth day, an eruption appears upon the surface of the body, varying in color from a dusky, reddish brown to purple or black. It is not elevated, nor does it disappear upon pressure. It is of a *petechial* character, and accompanied with *sudamina*. The tongue becomes brown and cracked, and, with the gums, is covered with sordes; the urine is scanty and highly colored; the dejections, when procured, are black and offensive. A peculiar ammoniacal odor is exhaled from the body. The *nervous* symptoms, such as dizziness, confused vision, and deep stupor, become more

prominent. Sometimes violent delirium takes the place of stupor; the patient is sleepless or restless, with complete prostration and helplessness. Patient lies insensible, or in a muttering delirium, with twitching of the muscles, hiccough, involuntary evacuations, insensibility of the surface, and finally death closes the scene, silently, and without violence.

Evidences of recovery.—If this take place at any stage, its approach will be announced by a *critical* discharge from some organ, and the patient begins to convalesce by slow degrees and under the influence of supporting remedies. The duration of the disease is, in its mild form, not less than seven days; it sometimes runs six weeks, and death rarely takes place in less than two weeks.

Anatomical characters.—There are but two constant lesions found, and those are, a want of coagulability of the blood, and the petechial eruption; all other lesions may be considered incidental. No disease is discovered in the glands of Peyer, as in *typhoid* or *enteric* fever, unless it be complicated with that disease. In post mortem, the blood is fluid, resembling the settlings of claret wine. Petechiæ are sometimes found in the muscles and deep-seated cellular tissue. The skin, fasciæ, muscles and cartilages are often found turgid with bile. There is great congestion of the liver, lungs and brain. Thickening of the arachnoid and effusion beneath it, are common. Blood is usually found effused in spots, various in size, between the under surface of the dura mater and the outer lamina, or parietal layer, of the arachnoid.

Complications.—Dysentery is most frequent in summer and pneumonia in winter.

Causes.—Crowding together in badly ventilated and filthy apartments. In this condition, the disease is contagious. Contagion is also a cause, though not a powerful one, where cleanliness and ventilation are suitably observed. Depressing influences of any kind may produce it. More common after 35 years of age; very rare in infancy. It prevails at all seasons and in all climates, though more in winter and in temperate and cold climates.

Pathology.—Little is known of the nature of the disease. It appears probable that a poison is absorbed, which depresses the powers of the nervous system and vitiates the blood.

Diagnosis.—The hue of the face, with suffused eyes, dark tongue, sordes upon the teeth, the peculiar eruption, constipation, characteristic odor, and the collapse of the last stage, mark the disease.

Treatment.—The first object is to remove as much as possible the cause, or to lessen its activity. Remove the patient from the confined and contaminated air in which the disease was contracted, or at least the apartment must be well ventilated.

In the forming stage, the indications are to overcome the torpor of the external capillaries, procure gentle perspiration and interrupt the morbid sympathetic action throughout the system. For this purpose, emetics are highly serviceable. If given at the onset of the disease, its course will be almost uniformly interrupted. For this purpose, an infusion of eupatorium perfoliatum and lobelia inflata, is the best.

Mild purgatives should be employed, so as to secure two moderate evacuations daily. Podophyllin one part, leptandrin two parts, ext. dandelion one part, sufficient to promote moderate action of the liver and bowels.

Diaphoretics are very beneficial in this and the subsequent stage of the disease; such as infusions of eupatorium, marsh mallows, crawley, and the like, to which add a small amount of salt, and mucilage of some kind.

In the stage of excitement, put the patient into a cold wet pack of salt and soft water, in the proportion of one pint of salt to one gallon of water. This will cool, soften and stimulate the functions of the skin to a healthy action, better than any other remedy, and act as an excellent disinfecting agent. After three hours remove the pack, wipe the patient dry, and rub the skin freely with the hand; renew the pack every six hours until the fever subsides. If in the stage of collapse, the water should be warm or tepid with a little mustard in it.

In the stage of collapse, stimulants and tonics are indispen-

sible; such as good wine, gin, ammonia, &c. Infusion of serpentaria, or the bark of the staphylea trifolia, may be given cold, one table-spoonful every two hours. Opium and camphor are often recommended, but they lock up the secretions too much, have a tendency to check the bowels, which are apt to be too costive, destroy the tone of the nervous system, already too much impaired, and increase the stupor and general insensibility. Hence, they are contra-indicated.

Enemas of infusion of eupatorium and cold mucilage, with half a teaspoonful of salt, carefully administered, morning and evening, are very beneficial throughout the whole course of the disease. This is antiseptic, refrigerant in a good degree, and highly beneficial.

Catheterization will be necessary in a majority of cases; therefore the state of the bladder should be inquired after. The bed and apparel should be kept clean, and frequently changed. Any spot likely to ulcerate should be frequently bathed with tincture of myrrh, and protected with soap plaster.

The diet should be sweet cream, farinaceous and mucilaginous substances generally. Solid food of all kinds, is decidedly injurious.

The head should be slightly elevated, and frequently sponged with whisky and water, cool or cold, according to the amount of heat present.

In conclusion, the plain indications are to nurse the patient carefully through the disease, prevent local inflammation, and to support the strength.

RELAPSING FEVER.

This disease arises from a specific cause, and is characterized by a periodical succession of febrile attacks, apparently alternating with complete convalescence.

Symptoms, Course, &c.—The attack is usually sudden. When the patient is in health he is seized, on waking in the morning, or in his daily avocation, with rigors, more or less severe. Chilliness alternates with flushes of heat, the warmth

of the skin rapidly increases, and, after a time, the rising fever is accompanied with severe frontal or occipital headache, pain in the back and limbs, and frequent pulse. The tongue is dry, and covered with a slight, milky-looking fur; the bowels are generally constipated, though diarrhœa is sometimes one of the first symptoms; the urine is high colored; no appetite, and much thirst. The breathing is fuller, stronger and more frequent than natural; the countenance is depressed, often anxious, and the sleep either disturbed or entirely gone.

In the *second stage*, all the symptoms are aggravated. The skin is dry and hot, pains in the back and limbs increase, and the patient complains of severe muscular soreness, so that he refuses to change his position for fear the pain will be augmented. The tongue has a brown coat along its center, while the tip and edges are parched and red. The heat of the skin increases to 100° , and sometimes even 107° , indicating, apparently, great inflammatory violence. By the second or third day the heart beats 100, 120 or even 130 strokes in a minute, and sometimes 140 to 150 in adults, which is highly characteristic of the disease. The urine is scanty and highly colored, and often voided with difficulty, and the thirst is urgent. Nausea and vomiting of green bile, are among the earliest symptoms. Epigastric tenderness is constant, and pressure over the spleen shows tenderness of that organ.

There are slight evening exacerbations and morning remissions very perceptible.

A *sweating stage* comes on after a period, varying from five to ten days, which is preceded by a high exacerbation of fever, and the patient sweats very profusely from twelve to thirty-six hours. The fever appears to have entirely abated, and the patient thinks himself perfectly well. This is a most remarkable change. In the morning the pulse may have been 130, the skin hot and dry, and head throbbing; in the afternoon the pulse reduced to 60, with a cool skin, and the patient be entirely free from pain. The next day the patient appears well, has an appetite, strength improves, and all things denote a perfect convalescence.

On the fifth to the ninth day from this sweating crisis, the patient is again suddenly seized with rigors, vomiting of a green, bitter fluid, headache, quickly followed by a hot skin, rapid pulse, furred tongue, confined bowels, and perhaps delirium; precisely as he was at first. After this condition continues from two to five days, he is again bathed in a very profuse perspiration, and the next day convalescent.

Thus the patient may suffer from three to seven of these attacks. The third attack, may and often does prove fatal.

Complications.—Gastric irritation is the most common. This often amounts to little more than nausea, retching, or slight vomiting, with occasional tenderness at the epigastrium. Sometimes nausea and vomiting are excessive and constant for several days, when any thing is swallowed, and pressure over the stomach is intolerable. At first the egesta are merely fluids taken to allay thirst; afterwards, bile, blood, and finally black vomit. Jaundice is another complication peculiar to this fever, appearing the third or fourth day. It lasts from one day to two weeks, without interfering with the progress of the fever. This bile, however produced, is not occasioned by obstruction or congestion of the biliary apparatus, for the stools retain their natural color, or are darker, and the urine is frequently loaded with bile. Moreover, post-mortem shows that the ductus communis is open in all cases where jaundice was present at death. Catarrhal symptoms are common in winter, and among children. Pneumonia and pleurisy occasionally accompany the relapse. Petechiæ are now and then present; an eruption, resembling flea-bites, is sometimes seen, differing from that of typhoid fever by being flatter and readily disappearing under pressure. Comatose symptoms supervene in old people in whom there is suppression of urine. Delirium is now and then observed after critical discharges.

Anatomical characters.—None have been pointed out. The most constant lesion is enlargement of the spleen. Pale, yellowish-pink masses, of variable size, firm to the touch, friable, with a slight granular fracture, are found in the spleen. A slight excess of serum is found beneath the arachnoid mem-

brane, and in the lateral ventricles of the brain. The blood is rarely found fluid; generally buffy. The liver generally large, and the gall bladder contains considerable thick, dark bile.

Cause, Mortality, &c.—Of the cause, little is positively known. It seems to be dependent upon some specific poison, and is contagious. The greatest mortality in any epidemic, not exceeding 12 per cent,—usually not more than 3 or 4.

Pregnant women attacked with it usually abort, and the accident is frequently followed by death.

No particular day has been observed when death takes place, but it is preceded with lethargy or coma, from which the patient may easily be aroused to answer questions.

Diagnosis.—The rigors, vomiting and pain in the back might lead one to suppose it a case of small-pox, but the pain and vomiting are not so severe. The suddenness of the attack, rigors, hot skin, and pain in the limbs, distinguish this from idiopathic head affections. The heat of skin, quick pulse, less violent frontal or occipital headache, serve to distinguish this from ordinary bilious fevers. No mulberry rash of typhus, nor the rose spots of typhoid fever are ever present in relapsing fever.

Treatment.—Warmth should be applied to the skin during the chill; also sinapisms, frictions, spirit vapor, &c., to counteract visceral congestion, by giving activity to the cutaneous capillaries.

Diaphoretics are highly useful, in aiding the natural tendency to a crisis, by sweating, and inducing temporary resolution of the fever. Warm infusion of eupatorium and ginger, with a little sudorific tincture, prove eminently useful in alleviating the great muscular pain and soreness of which the patient complains.

Sinapisms to the back and feet may be useful in relieving the intense lumbar pains which greatly annoy the patient. Cold evaporating lotions applied to the head, are required to relieve the pain in it.

When the febrile stage has fully come on, with hot and

dry skin, I know of nothing which will give such immediate relief as a sheet wrung out of cold salt and water and rolled around the whole body and limbs, with cold to the head. This pack moistens and softens the surface, equalizes the circulation and in about half an hour the patient will declare, with a smile, "I feel a great deal better, doctor." When this treatment is pursued there is little danger of any fatal congestion supervening.

If a continuance of this disease depends upon an enlarged or congested spleen, common salt internally, counter irritation, and other revulsives, externally, will be required to reduce this organ. Iodide of potassium, with the alterative syrup, is also a valuable remedy in such cases.

Stimulants and *tonics* are required early in the case, to relieve the excessive debility, and to prevent the sinking of the powers of life. Bitter tonics and chalybeates should be continued until the patient is restored to perfect health and strength.

Article VI.

PLAGUE.

This febrile disease is characterized by buboes, or swelling of the lymphatic glands; carbuncles and petechiæ. It has never appeared in America, and a description is only useful to the profession here, as a source of information, and to qualify a physician for foreign travel. It originated and has always prevailed around the eastern extremity of the Mediterranean and its tributaries. It visited western Europe in the middle ages, and was well known in Italy, France, England and Germany. London and Paris suffered greatly from it in former times. In 1720, Marseilles lost about one-half of its inhabitants by its visitation, since which the plague has been almost unknown in the west of Europe. Egypt, Syria, Anatolia, Greece, European Turkey, and occasionally a portion of Russia, are about the only sufferers from it, the last one hundred years.

Symptoms, Course, &c.—The ordinary premonitory symptoms of fever, such as chilliness, weariness, languor, præcordial uneasiness, occasionally nausea and vomiting, headache, vertigo, a hot and dry skin and frequent pulse. Darting pains are felt in the groins, armpits, and other parts, with enlargement of one or more of the lymphatic glands, or by inflammation of the subcutaneous tissue, constituting carbuncle. The tongue is at first somewhat swollen, moist, and covered with a white fur; before the close it often becomes dry, brown or black, and sometimes fissured; and a dark sordes appears upon the gums, teeth and lips. The thirst is often extreme, with burning heat internally. Severe pain is felt in the præcordia, with nausea and frequent vomiting of whitish or blackish, and sometimes bloody matters. The bowels are constipated at first, but become relaxed, passing dark and offensive stools. The respiration is hurried or laborious, with varying pulse, being full and strong, or feeble, nearly natural, and in bad cases intermittent. The urine varies; it may be abundant or scanty, turbid, yellowish or blackish, and tinged with blood. Sometimes a favorable and moderate perspiration appears; at others it is very copious and exhausting. The patient's strength is greatly prostrated, and if he attempts to walk, staggers, and attacks approaching syncope are common. The eyes are red and turbid, face flushed, or livid, and the expression of the countenance much like a drunken man. The mind is confused, delirious, stupid, or comatose; or extremely restless, agitated and alarmed.

The symptoms vary in different hours of the day, and like other fevers there are remissions and exacerbations, occurring twice in twenty-four hours, in the morning and towards evening; the exacerbations in the middle of the day and night. The morning remissions and evening exacerbations are the greatest. The remissions are attended with perspiration, which if considerable on the fourth or fifth day, is deemed favorable. The violence of the exacerbations are diminished after this, and there is a gradual amendment. The buboes

and carbuncles have been regularly progressing, leaving abscesses or ulcers, which heal sooner or later.

In fatal cases all the symptoms assume a grave character; the pulse sinks, blood oozes out of the mucous surfaces, petechiæ or vibices appear on the skin, and it becomes cold and clammy; the tongue trembles, subsultus, coma, or low delirium indicate a struggle. The buboes appear late in such cases, do not suppurate, and sometimes disappear. Death occurs from the fifth to the fourteenth day.

The disease is occasionally very mild; and again extremely malignant from its very commencement, and death may occur by the third day.

Cause.—Some maintain that it is propagated by a peculiar contagion; others admit that it is contagious, but believe in its endemic and epidemic nature. A third party deny that it is contagious, and assert that the disease originates either from local causes or epidemic influence.

Nature.—It is probable that poison is absorbed which alters the nature of the blood and the condition of the tissues.

Treatment.—No plan of treatment has ever been well settled among the profession, and authors direct that it should be conducted upon general principles. It is generally conceded that emetics and cathartics are indicated in the early stage of the disease. It is also uniformly admitted that cold ablutions or affusions are proper in the exacerbations of fever, with refrigerant saline diaphoretics and aperients; as seidlitz powders sufficient to keep the bowels freely open. A cold pack, repeated at every returning exacerbation, will prove highly beneficial to the surface of the whole system.

I should have great confidence in the use of extract of lobelia, sanguinarin, and leptandrin, in suitable doses and at proper intervals.

Tonics and diffusible stimulants are necessary in low forms of the disease, to sustain the sinking vitality. Emollient poultices and discutients may be applied to the carbuncles and buboes; and gentle stimulants to the ulcers which follow

them. The fetor from them may be corrected by the application of a solution of sulphate of iron.

Prevention.—Frequent ablutions with salt water, perfect cleanliness, moderation in eating and drinking, ventilation, and the avoidance of crowded and filthy places, will secure immunity from the malady.

Article VII.

VARIOLA, OR SMALL-POX.

This is a contagious disease, with an initial fever of 3 or 4 days duration, followed by a peculiar eruption, which is at first papular, then vesicular, and finally becomes pustular. It was unknown to the ancients, and first appeared in Europe about the time of Mahommed.

Two varieties are usually noticed; the *distinct* and *confluent*. The pustules are completely isolated in the distinct; and they run together, and are more abundant in the confluent form.

Three stages characterize this disease; 1st, the initial or eruptive; 2d, the maturative, commencing when the eruption is fully out; 3d, the declining period.

Symptoms.—The ordinary symptoms are fever, with increased pain the back; gastric irritability, often amounting to obstinate vomiting; sore throat, and convulsions in children. The fever is the remitting type, and nearly subsides on the appearance of the eruption, which comes out the third day, in the distinct variety. At first the eruption appears in minute red papules, over the face, neck, chest and abdomen, and finally extends to the lower extremities. About two days more complete the eruptive stage.

The second stage commences when the eruption is fully out, which begins to undergo change on the different parts of the body in the order in which it appeared. The pimples are changed into vesicles on the second or third day after the eruption, and become *umbilicated*, or depressed at the sum-

mit, on the fourth. They gradually increase in size, and the lymph gradually becomes opaque, until the vesicle thus changes to a pustule. They lose their dimpled appearance about the fifth day of the eruption, and become convex at the top; and about the eighth day of the eruption, or the eleventh or twelfth of the disease, they gradually turn a brownish color, sometimes burst, and dry up.

The extent of eruption, varies from a few scattered pustules to a complete efflorescence over the whole body, but the *isolated* character is always maintained in the *distinct* variety. The mucous membranes become affected during the eruptive stage; hence the sore eyes, and pain in the throat. The skin on the head and face is usually swollen during the filling and maturing of the pustules.

The secondary fever, or fever of maturation, comes on about the eighth or twelfth day of the disease, or the sixth or eighth day of the eruption. This secondary fever is caused by constitutional sympathy with the local affection, and is mild or severe in exact proportion to the severity of the eruption. *A peculiar greasy odor* is given off from the patient's body, during the maturing period, by which the disease may be readily recognized; and this stage is accompanied by a violent itching.

The third, or declining stage, commences about the twelfth day of the disease. Some of the pustules burst and pour out their contents, drying down into a brown scab; others dry up. This process of desiccation is completed from the fifteenth to the twentieth day, after which circular brownish spots remain for several weeks, leaving permanent, characteristic pits.

In the *confluent form* of *variola* all the symptoms are more severe. The gastric and cerebral disturbance is more intense, with constant vomiting and delirium, or convulsions. For this reason death may take place before the eruption appears. The eruption is *simultaneous*, and not *successive*, and occurs about the second or third day; rarely the fourth, and still more rarely the fifth. It is sometimes accompanied by a rash, resembling scarlatina, or a form of erysipelas.

In this variety the eruptions are less prominent and more severe than in simple variola, and their edges run into each other; hence the term *confluent*. They do not fill so well as in the distinct form, and are darker and more flat. They are more numerous on the face than on other parts of the body; and, when crusts form, the whole face is covered with a mask, composed of the scab. The crust falls off from the fifteenth to the twentieth day. The fever never entirely subsides as in the distinct form; is much worse during the maturing stage, and, although usually of a sthenic character, it may assume a low grade, and the patient die from extreme exhaustion. The face begins to scab about the tenth day of the disease. The skin is excessively swollen; matter oozes out beneath the crusts, and is mingled with a bloody and ichorous discharge. The mucous membranes, generally, suffer greatly, and those of the eyes, nose, throat and larynx, often ulcerate.

If the patient survive the *second* and pass into the *third stage*, or that of decline, he is exposed to danger from pseudo-membranous inflammation of the larynx and fauces, pneumonia, pleurisy, destructive ophthalmia, sloughing or ulceration of the cornea, and subsequent opacity of its structure, excessive suppuration, erysipelas, and gangrene. Unsightly scars and pits are usually left after desiccation.

In *malignant small-pox* there is either complete prostration of the nerve power from the first, so that the system never reacts, or there is a depraved condition of the blood, causing petechiæ and vibices, accompanied with other evidences of a typhous state. In such cases, patients usually die about the seventh or ninth day of the disease.

The most danger exists during the secondary fever, which is very violent in the confluent form of small-pox. Dr. Gregory reports 168 deaths; of these 32 died the first week of the eruption, 27 the eighth day, 97 the second week, and 21 the third. In the first week death was caused by the overwhelming malignancy of the poison, oppressing the brain, and causing coma; in the second week, by affections of the air passages; and in the third, from debility.

Prognosis.—The distinct variety recovers under proper treatment ; the confluent is very dangerous, and the malignant usually fatal.

Cause.—A specific contagion. All are liable to the disease unless previously protected. Epidemic influences aggravate the nature and energy of the malady, but cannot produce the disease, or *originate* the cause.

Treatment.—Small-pox was a very fatal disorder under the old and stimulating mode of treatment. It is now quite manageable under a *refrigerant* plan, and little difficulty need be apprehended if proper measures are adopted and a few very simple rules observed throughout the course of the disease.

1. The patient should occupy a large, cool and well ventilated apartment. An upper room is quite preferable, so that the sick person may remain at the same house with the family of which he is a member ; and that the ordinary necessary avocations may be pursued by all, except the patient and attendants. This will save much trouble, expense and inconvenience to interested parties.

2. A good, experienced and efficient nurse, of prudent and quiet demeanor, should be employed to take charge of the patient, and administer carefully to his wants.

3. Begin with a gentle emetic of eupatorium perfoliatum, followed by a small seidlitz powder every four hours until two or three moderate evacuations from the bowels are induced. Wash the patient's body and limbs with tepid salt and water, and wipe dry. Repeat the saline ablutions, with a soft sponge or cloth, every six hours, until the pustules begin to turn brown, and show a disposition to desiccate. This will keep the skin clean, and restore its tone to a very great degree. It will also induce the fluids to the surface, and cause the disease to spend its chief force upon the skin.

4. Administer a table-spoonful of the cold infusion of eupatorium, hydrastis and althea officinalis, every two hours until the fever subsides, and once in four hours afterwards, until convalescence is fully established. During the febrile stage give cold mucilaginous drinks as freely as the patient

desires ; the diet should be rice, oat-meal gruel, corn-starch, arrow-root, &c.

The infusion above mentioned is diaphoretic, tonic and aperient ; it moderates the fever, modifies the virulence of the contagion, and eliminates it from the system by increasing the peristaltic action of the bowels, promotes the action of all the bodily functions, and sustains, to a good degree, the physical vitality.

5. When the eruption shows a disposition to form scabs, apply a soft cloth, wet with sweet oil, to soften and dissolve them, and allow morbid matter to escape. The surface should be carefully sponged and the cloths renewed every six hours. This process will prevent to a great degree the absorption of virus into the system ; no ulceration of the skin will occur, and, of course, no secondary fever or ultimate disfigurement will take place.

6. Let the patient rest on a cool mattress, and wear loose muslin or linen apparel, which, together with the bed-clothes, should be changed twice a day. When removed, the clothing may be sunk in a tub of weak ley, to prevent the possibility of an escape of any particles of contagion from the sick chamber. Linen or muslin robes, ample enough to cover the entire person, should be worn by the physician and nurse while in the sick room, and thrown off at the door on leaving.

7. During convalescence the eruptive surface should be cleansed twice a day with a clear tepid infusion of hydrastis and gold thread, and protected with olive oil, until the skin assumes its normal condition.

This plan of treatment is one peculiarly my own, and has proved in my hands completely successful. I always treat my patients at their residences, without removal ; and the disease has never been conveyed from the house. In all my extensive practice, in which I have treated hundreds of patients, I have never lost a case, nor have I treated one who shows any evidence of having suffered from the disease.

In mild cases the foregoing may be much modified. Be

extremely careful to prevent the "*pitting*" which so often disfigures the patient for life, and makes him, in this particular, a living witness of the disgrace of our venerable profession. As we prize the beauty and fairness of our Anglo-Saxon skin, let us redeem the character of our time-honored fraternity by securing all whom we treat in this disease from such a calamity.

Prevention of small-pox.—There are two methods—*inoculation* and *vaccination*. The first mode is very effectual, because it imparts the disease in a mild form, but is sometimes attended with danger by multiplying *centres of contagion*. It is also attended with much trouble and inconvenience, and therefore vaccination is universally practiced.

Varioloid is a modified form of small-pox, occurring in persons protected by the influence of vaccination. A complete protection afforded by vaccination extends to only about one-half of those who have been suitably vaccinated.

It need not be regarded as a distinct disease, for the proofs of its identity with small-pox are full and satisfactory. It is produced by precisely the same cause, and only exists in a much milder form. It will produce the genuine small-pox in the unprotected. In some cases the fever exists alone; in others, only an eruption, either vesicular or papular, but commonly pustular in part, going on to the fourth or fifth day, and then drying up. It is always shorter in its course, by several days, than small-pox, and has not the characteristic odor of that disease.

Treatment.—This should be the same as in all mild cases of real small-pox, and all precautionary measures should be adopted to prevent the spread of contagion, and secure the patient against becoming disfigured, as is necessary in variola.

Article VIII.

VACCINE DISEASE.

SYN.—*Cow-pox*.—*Kine-pock*.—*Vaccina*.—*Vaccina*.

This is the name given to a disease attended with umbilicated vesicles, produced by vaccination, and which protects the human system from the small-pox. Dr. Jenner introduced into practice this artificial mode of protecting the system, and to him lasting honor and gratitude is due. The disease was first noticed in the cow, (whence its name,) in which animal it is in small vesicles upon the teats. The matter taken from such vesicles is certainly protective.

This disease is variola in a greatly modified, milder form, rendered so by passing through the system of the cow. This idea is confirmed, by the experiment of inoculating the cow with variolous matter, and then employing some of the matter from the resulting pock; it is found to be protective.

Symptoms, course, &c.—At first a slight inflammation at the point of puncture is seen, which soon disappears. A little red speck, slightly elevated, appears on the third day, which becomes a vesicle on the fourth day. It is slightly umbilicated, on the fifth, and contains a clear lymph. It enlarges gradually, and the areola is visible. It continues to enlarge until the tenth day, when the height of the disease is fully attained. Now the pock is about one third of an inch in diameter, elevated, umbilicated, and has a minute scab upon its surface. The areola is about two inches in diameter. The scab gradually forms, the serous fluid is replaced by pus, and the scab separates usually about the twenty-first day, leaving a cicatrix of a peculiar appearance.

The constitutional symptoms appear about the eighth or tenth day, and are often very slight. There is usually a little fever, swelling of the axillary glands, and occasionally a slight eruption. There is a great difference in the susceptibility of persons to the vaccine disease, and also in the same person at different times.

The degree of protection afforded.—It appears from the result of numerous and extensive experiments, that about *one-half* the vaccinated are liable to a modified form of small-pox, or varioloid, on exposure.

Does it wear out and require renewal? If it did, the susceptibility to varioloid ought to increase, the longer the interval from the period of vaccination; whereas the susceptibility really diminishes after the twenty-fifth year. The truth is, that the original amount of protection afforded by vaccination, differs in different cases; and that the greatest susceptibility to varioloid exists between the ages of 15 and 25 years. Hence *re-vaccination* should always be practiced *within these years*; or, if not then, certainly at the appearance of any small-pox epidemic. Great care should be observed to use a genuine *vaccine virus*, free from any complication with other eruptive disease.

Article IX.

VARICELLA, OR CHICKEN-POX.

SYN.—*Crystalli.*

This is a contagious eruptive fever,—and the eruption is vesicular.

Symptoms.—The febrile symptoms are very slight; they continue from a few hours to two days, and disappear on the occurrence of the eruption. This comes out in small red spots, which speedily form into vesicles, and are usually accompanied with itching. The vesicles mature about the fifth day, having become puruloid. Desiccation then commences, and the crusts finally fall off on the ninth or tenth day. The pocks are usually few in number, and seldom umbilicated.

Cause—The only cause known, is a specific contagion.

Treatment.—Mild aperients, gentle and cooling diaphoretics, with strict attention to cleanliness, and plain unstimulating food, are all the remedial measures required.

Article X.

RUBEOLA, OR MEASLES.

SYN.--*Morbilli.*

This is a contagious fever, accompanied with an eruption of a peculiar character.

Symptoms.—The symptoms are those of an ordinary fever, accompanied with those of catarrh. Redness and watery appearance of the eyes, frequent sneezing, hoarseness and cough, are the prominent symptoms. There may be some dyspnoea and tightness of the chest.

The *eruption* appears on the fourth day, in small circular spots, first on the face, and in a day or two extends to the neck, chest and limbs. The small spots are generally succeeded by larger ones. The final arrangement of the patches, are generally *semicircular*, or of *crescentric* form. The red tint of the eruption is the most intense upon the face on the fifth day.

There is no subsidence of fever on the appearance of the eruption; it may even increase, as also the catarrhal symptoms. The eruption is slightly elevated, and attended with itching when at its height. A few papulæ or vesicles, may be interspersed among the regular eruption.

The heat, thirst, redness of eyes, frequency of pulse, and catarrhal symptoms, may subside when the eruption is fully developed, or they are much alleviated; the nausea and vomiting also subside. The watchfulness disappears about the sixth day, but the cough and dyspnoea remain. On the third or fourth day of the eruption the spots become paler, and gradually assume a yellow tint. When the redness has entirely disappeared, the epidermis becomes detached in small furfuraceous scales.

The eruption sometimes appears on the third day, in children of a delicate skin, but in those of a thick, brown skin, it does not appear until about the fifth day.

Catarrhal symptoms are absent in some cases; then the

disease is named *Rubeola sine Catarrho*, or *French Measles*. Again, there may be simply a fever, with catarrh, and no eruption. These forms of the disease appear to be of a spurious kind, and are not certainly protective against the recurrence of the measles after a subsequent exposure to the infection.

The mucous membranes generally, are apt to be affected in measles, but those of the trachea, bronchia, fauces, nostrils, and eyelids, are the ones most likely to suffer. Those of the stomach and bowels sometimes suffer principally, producing nausea, vomiting and purging. Sometimes the membranes of the brain are chiefly affected, inducing convulsions, stupor or coma.

Prognosis.—*Unfavorable* in very young children, when the eruption appears before the third day, or when it suddenly disappears; a leaden hue of the spots, petechiæ, or excessive dyspnoea. *Favorable*, when the gastro-pulmonary symptoms are slight; the progress of the disease regular, and when the skin is moist after the eruption appears.

The sequelæ of measles are bronchitis, pneumonia, pleuritis, cæco-colitis, diarrhoea, and ophthalmia. The chief danger arises from its complication with pneumonia.

Causes.—A specific contagion. It is said to be imparted by *inoculation*. Epidemic influences may operate in its production.

Treatment.—In ordinary cases, very little medication is required. The important duty of the physician, in treating this disease, consists in watching closely its progress throughout the entire course, in order to recognize and promptly remedy the first stage of any complication which may occur.

When the eruption appears at the usual period, the patient should drink freely of cold mucilages, such as ulmus, marsh mallows, &c., and, if constipated, the bowels should be opened by injections of the same. Frequently sponging the entire surface with tepid alkaline water greatly modifies the heat of the skin, and facilitates the early and complete development of this affection. Small doses of asclepedin and eu-

patorin, *aa*, at intervals of two to four hours, are useful in alleviating the cough and the difficulty of breathing, and also act favorably in producing diaphoresis.

If the eruption be delayed, bathe the patient in warm water, made sufficiently strong with the flour of mustard to produce a slight smarting of the skin, and the eruption will soon appear and become well developed. A hot vapor bath is always proper. If the eruption recedes too early, from a cold, this application should be renewed, together with warm drinks, to restore it to its proper intensity. The use of alcoholic stimulants, to develop the eruption, I do not approve, for the reason that it favors pulmonary and cerebral congestion, which are common and dangerous complications in measles.

If the cough be very troublesome, take eupatorium in soft extract, fluid ext. lobelia, and salad oil, *aa*, triturate with loaf sugar, and administer in such doses as the stomach will bear, every two hours. It will generally afford satisfactory relief.

Should signs of decided bronchitis or pneumonia be at all threatening, envelop the entire chest with a pack, composed of a wide roller, or towel, wrung out of tepid water, containing flour of mustard and tincture of lobelia, and apply three or four thicknesses about the thorax. Reapply this once in four hours, until relief is obtained. Warm applications to the feet are also requisite.

If symptoms of laryngeal inflammation, or croup, occur, give a gentle emetic, envelop the throat and neck as before directed for the chest, followed by syrup of ipecac and lobelia, in small and frequently repeated doses. The warm bath and warm fomentations, or emollient cataplasms, are also often of advantage in this condition.

If the eyelids inflame, keep them wet with a solution of the pith of sassafras, or of refined borax, in rose water. These are excellent remedies and sufficient for this purpose.

The convulsions of infants, which often occur in this disease, require little more than the warm bath, pediluvia, enemmas of warm water and lobelia, &c. You should carefully

discriminate between a simple irritation of the brain itself, and that arising from dentition, crude ingesta, worms, &c. If, therefore, the convulsions are persistent, often repeated, or followed by stupor, cold evaporating lotions should be applied to the head, and sinapisms to the spine and feet. An emetic, and possibly some mild vermifuge may be required in addition to the measures just mentioned.

Moderate diarrhœa need not be checked, but if severe and painful it should be checked and relieved by the ordinary means, addressed to the existing pathological state of the bowels, as in enteritis, or diarrhœa.

Malignant measles must be treated, like other typhous diseases, with tonics, stimulants, and a judicious use of aperients, &c.

The diet, in ordinary measles, should be strictly antiphlogistic, and in the fluid form, while the fever lasts. In cases of great debility, it may be necessary to give animal broths, milk, cream, &c.

Great care is required, during convalescence, to guard the patient against the influence of cold, for some days after the desquamation is completed, and all catarrhal symptoms have disappeared.

Inoculation for this disease has been practiced, with the tears, and the fluid from the patches, with a view of modifying its virulence. This is only necessary in malignant epidemics.

Article XI.

SCARLATINA, OR SCARLET FEVER.

This is a contagious, eruptive fever, affecting the skin and mucous membrane of the throat, very particularly. It begins with the usual symptoms of the initial stage of febrile diseases. About forty-eight hours after the affection commences, the whole surface of the body presents small red points, soon followed by patches of a deep scarlet color, serrated at their edges, which become confluent and terminate by des-

quamation from the fifth to the ninth day. The rash is slightly elevated above the skin, and disappears on pressure.

Varieties.—Scarlatina occurs under three forms—*Scarlatina Simplex*, *S. Anginosa*, and *S. Maligna*.

Symptoms of Scarlatina Simplex.—The precursory symptoms of this form are, general debility, nausea, shiverings, followed by flushes of heat, and thirst. On the *second* day of the fever, numerous small, light red points appear, and generally become deeper, on the face, neck and chest. About twenty-four hours after, similar spots appear on the body, lips, tongue, palate and pharynx. One day later, the interstices which had been left are covered with large dotted patches with serrated edges. At this time the pulse is full and frequent, the tongue is covered with a creamy coat, and the red and elevated papilla appear through it, giving the characteristic appearance of this organ. The skin is much hotter in this form of exanthema than any other. On the groins, buttocks, and folds of the joints, the [scarlet colour has a deeper tint than elsewhere.

The interstices between the patches become larger about the *fifth* day, the scarlet color less vivid, and slight desquamation begins on the neck, temples and chest. On the *sixth* day the character of the disease becomes less distinct; on the *eighth* and *ninth*, desquamation takes place on the hands, feet and other regions of the body.

Scarlatina Anginosa.—This form is characterized by the accompanying inflammation of the throat; it commences with more intense fever, and a sense of stiffness of the neck and inferior maxilla. On the second day the pharynx is inflamed, deglutition difficult, tonsils swollen, the mucous membrane of a vivid red, and throws out a thick, viscid fluid, of a whitish-yellow color. From the second to the fourth day, symptoms of gastro-enteritis present themselves; tongue bright red, nausea, vomiting, diarrhoea, or constipation, dry cough, quick, vibrating pulse, and occasionally epistaxis. On the third day the eruption appears; it is irregular and unequally distributed. It sometimes disappears suddenly, and

returns again after an uncertain period. Its duration is longer, its course is more irregular, and it is more dangerous than the simple form.

Scarlatina Maligna.—*Putrid Sore Throat.*—The symptoms are similar to the preceding variety, though of a much graver type. The patient sometimes dies in a very few hours, before any eruption or local symptoms appear. Usually the throat affection is prominent. The eruption is of a livid hue, and frequently interspersed with petechiæ. It may disappear and return several times during the course of the disease. The pulse is small and irregular, tongue and teeth covered with a brown or black incrustation, eyes injected, vision imperfect; respiration laborious, breath fœtid, pharynx covered with a thick, viscid mucus, and often sloughing of the surface of the amygdalæ. In children, coma and convulsions are frequent concomitants of this affection; in adults, delirium and deafness.

The appearance of petechiæ, profuse diarrhœa, difficult respiration, or of deep coma, are fatal signs.

The *sequelæ* of scarlatina are, anasarca, ophthalmia, otitis, bronchitis, enteritis, orchitis, tonsilitis, abscesses of sub-maxillary and parotid glands, chronic and obstinate diarrhœa, &c.

Treatment.—Cases of scarlet fever, as they usually occur, have a natural tendency to recover, without any medication whatever. This readily accounts for the boasted “superior success” of homœopaths in their treatment of this disease. Judicious medication, however, greatly mitigates its violence and shortens its duration. On the other hand, when bleeding, mercurials, and antimonials are used, according to the standard authorities, in the anginose variety, few patients escape without congestion of various interior organs, with inflammation of the alimentary mucous membrane; and in very many cases, a typhoid state, and perhaps death, is induced, where they would otherwise have recovered. I speak from personal experience of twelve years in the use of the articles just mentioned, in conjunction with the milder official remedies recommended, and have often witnessed their

uncontrollably disastrous effects. But during the last ten years, and since I have abandoned their use, I have not lost a single patient, nor have I had one who has been left with any chronic affection resulting from the disease or treatment.

The *simple* variety requires no other measures than a small dose of the neutralizing mixture, every four hours, as a mild aperient and antacid, with topical alkaline bathing two or three times a day, cold mucilaginous drinks and a farinaceous diet.

The *anginose* variety calls for a more active and thorough process of medication and nursing; nor is the latter of less importance than the former, to its favorable course and termination. It is almost universally admitted, that the treatment should begin with an emetic, for which I greatly prefer an acetous tincture of ipecac, bloodroot and lobelia, *aa*, altered and facilitated in its operation by a warm infusion of catnip and boneset. Its unpleasant taste may be modified by the addition of three times the quantity of simple syrup, and should be administered in moderate doses, at intervals of ten minutes, until copious emesis is induced. The eruption is generally fully and regularly developed at the proper time, where an emetic has been taken. If, however, there should be any delay in its appearance, sponge the entire surface thoroughly with warm mustard water, followed by brisk friction with a dry towel and the bare hand. No other cathartic or aperient should be given than the seidlitz powders, and of these only sufficient to promote gentle and free evacuation of the alimentary contents, two or three times in every twenty-four hours.

Diaphoretics of an active character are clearly indicated throughout the entire course of the disease, or until convalescence has fully taken place. As such, I usually prescribe the superfine flour of bloodroot half dr., pulv. ipecac half dr., sup. carb. soda one dr., and solution of gum arabic one gill; stir up and give one tea-spoonful every two, three, or four hours, according to the intensity of the fever, and as the stomach will bear.

The cold water pack, when there is intense heat and great dryness of the skin, is one of the most comforting and efficient means I have ever employed. In less intensity of fever, or heat of the surface, frequent sponging of the skin with a solution of refined borax in rose water, in the proportion of one ounce of the former to one quart of the latter, is an excellent application.

Cold mucilaginous drinks should be allowed during the entire febrile stage. Where I have prescribed small pieces of ice to be held in the mouth, and even occasionally swallowed, I have never witnessed but a slight inflammation and swelling of the tonsils, difficulty of swallowing, or nausea and vomiting. I have often allayed active irritation of the stomach, sore and inflamed mouth and throat, with this simple remedy alone. As an auxiliary, however, I usually apply a roller to the neck, wet with equal parts of tincture of lobelia and arnica.

Since I have pursued the foregoing course of treatment, modified, as cases required, I have witnessed none of those troublesome sequelæ, such as glandular abscesses, with exhausting discharges, hectic, &c., which so often occur under the common mode; yet I do not say that cases may not occur, in constitutions previously debilitated, or during the prevalence of some severe epidemic, which naturally tend to a malignant form.

In *scarlatina maligna*, like that of all other low types of disease, the treatment should be tonic and supporting from the first, or from the period when it assumes the malignant grade.

The external and internal use of chlorine, and especially chloride of sodium, is a remedy of singular efficacy. The patient may be sponged with rose-water one pint, tincture capsicum four ounces, common salt two ounces. An emetic of ipecac, lobelia and capsicum, *aa*, aided by a warm infusion of boneset, in which there is a little salt, may be needed.

If the throat exhibits a dark or purple appearance, it should be gargled or swabbed once in four hours with a decoction of

half a drachm of capsicum and one drachm of salt, in a tea-cupful of vinegar and water. A warm infusion of eupatorium and hydrastis, *aa*, half ounce to one pint of water, to which add two drachms of salt, and sweeten with loaf sugar—may be given in such doses as the stomach will bear, every two hours, allowing the patient to drink freely of cold mucilage of ulmus. In the mean time keep the roller around the neck, wet, as before mentioned, with tincture of capsicum added. Quinine and iron every two hours, in three grain doses, will also be indicated. If the extremities are cold, and the eruption exhibits a purple appearance, rub them with dry mustard and wrap them in dry, hot flannel. Occasionally the whole surface may be in a similar condition, and requires the same treatment. After the circulation is well restored, and the symptoms of congestion relieved, the surface may then be bathed with warm whisky and salt.

Great care is requisite during the stage of convalescence, to prevent taking cold, and the occurrence of dangerous congestions, or inflammations, attended with typhoid fever.—Phthisis pulmonalis may be ushered in by this means, when a predisposition to the disease previously existed.

Prophylactic measures of various kinds have been recommended, but none have been more strenuously urged upon the profession than belladonna. I have often known it to fail in preventing attacks where the disease was of pretty general prevalence, and it is doubtful whether any thing in the way of preventives are better than the ordinary measures for the promotion of health. Belladonna is often useful in treating the disease, even in the anginose variety. It may be given, after an emetic has operated, by dissolving two grains of the extract in one ounce of water, in doses of ten drops, to a child two years old, every two hours. Adults may take forty drops at a dose.

Article XII.

ERYSIPELAS.

SYN.—*St. Anthony's Fire.*—*Rose.*—*Ignis Sacer.*

This is a constitutional affection, characterized by a peculiar circumscribed inflammation of the skin, accompanied with fever.

Symptoms.—Languor, general uneasiness, aching or soreness in the limbs and joints, chilliness alternating with flushes of heat, frequent pulse, hot skin, furred tongue, thirst, sometimes nausea and vomiting, soreness of the throat, and swelling of the lymphatic glands in the neighborhood of the affected part.

About the third day of the primary fever, a small reddish spot appears, generally upon the face, though it may occur upon any portion of the body; it is somewhat elevated, painful, and tender to the touch. The spot gradually spreads to a greater or less extent, usually continuous, and may extend over the whole body; preserving, however, an abrupt and distinct boundary between the healthy and diseased skin. The inflamed surface is red, swollen and shining, and attended with a peculiar burning, prickling pain. The redness disappears under pressure, but quickly returns on its removal. The subcutaneous cellular tissue is more or less distended, and in loose textures strikingly œdematous.

Sometimes the inflammation gradually subsides, and terminates in desquamation. Often, however, numerous minute miliary vesicles, or bullæ, are observed, which run together and produce an extensive blistered surface. These rupture and dry down into crusts or scales, which separate about the tenth day.

When the face and head are attacked they become so enormously swollen, as to obliterate the features. The eyes are closed, the lips, nose, cheeks, and ears greatly enlarged and swollen, so that the patient hears, breathes and speaks, with

difficulty. It is very dangerous, owing to its contiguity with the brain.

In the *phlegmonous* variety the subcutaneous cellular tissue becomes involved; producing hardness, swelling and pain. It frequently terminates in suppuration, and, if the pus is not allowed an exit, abscesses will form, implicating the inter-muscular tissue, and producing much mischief. The abscesses burst externally, discharging gangrenous masses, mixed with fœtid pus. The constitutional symptoms become severe; pulse quick and hard, tongue brown, cerebral or abdominal inflammation may come on, and the patient sinks under diarrhœa, with low muttering delirium and coma.

The *œdematous* variety occurs in loose cellular parts, and, owing to the deficiency of blood in the part, caused by the distention of the areolar tissue, is very liable to terminate in gangrene. The genitals in women, the scrotum in men, and the limbs of hydropic patients, are the most usual seats of this form of the disease.

Though usually of a sthenic character, it may assume a malignant form. The disease termed *black tongue*, is probably a malignant form of erysipelas, without an eruption.

The duration of this disease, in favorable cases, is about a week; it may continue for a month or longer. Metastasis to internal organs frequently occurs.

Cause.—A peculiar poison, not contagious. It is sometimes merely a local disease, depending upon some local injury.

Diagnosis.—In the earlier stages the pain, swelling and tenderness of the lymphatic glands of the neck, are conclusive.

Prognosis.—Common cases generally end favorably. Sudden disappearance of the external disease, unfavorable. Phlegmonous more dangerous than the superficial. The aged, intemperate and debilitated, are apt to die. Very fatal in new born children. Coma and continued delirium are unfavorable symptoms.

Treatment.—An emetic is the proper remedy with which to begin the treatment; there is often a marked improvement,

and sometimes a rapid convalescence, immediately after its operation. An emeto-cathartic generally has a still better effect. If this last be not given, I have found podophyllin, one-fourth gr., leptandrin and ext. lobelia one grain each, taken every fourth hour until the bowels move freely, to have a decidedly beneficial influence.

Diuretics are indicated in this affection. Turpentine, in small doses, combined with spirits nit. dulc., along with cold mucilaginous drinks, are among the best. They should not be omitted.

Antiperiodics are often necessary in miasmatic districts, and when the disease shows a disposition to remit or intermit. The usual ones used in remitting and intermitting fevers are proper, according to circumstances.

Diaphoretics are indispensable in order to keep up a good determination to the skin, and prevent metastasis, in which consists the chief danger. Ipecac, eupatorium, bloodroot, crawley and gelseminum, are among the best.

If there be much irritation of the bowels after the operation of an emetic, a cathartic of castor oil and turpentine often acts like a charm. This may be followed by enemas of starch and tinct. opii., if necessary.

Local applications.—Cold evaporating stimulants have been far the most successful in my practice. Good Irish whisky, kept constantly upon the parts by means of a cloth wet with it, is generally productive of good effects. Equal parts of whisky and rose water are sometimes best if there is great heat of the surface. Wilted cabbage, lettuce, or poppy leaves, applied to the inflamed surface, generally allay the intense burning, tingling pain, by protecting the part from the action of the atmosphere. Emollient poultices are often beneficial. Internal remedies, however, are the chief reliance.

Spreading erysipelas may usually be arrested by the application of tincture of iodine or nitrate of silver, just beyond the edge of the inflamed surface. A border, one or two inches wide, may be formed with either of these agents, to prevent the disease from extending to inconvenient or dangerous

positions. If nitrate of silver be used, the stick is best. Should the inflammation extend over the border formed, it is usually mitigated in its severity, and it may be often arrested by a repetition of the application upon the surface invaded.

If the surface presents a dark or livid hue, more active stimulants are required; as oil of rosemary and hemlock, 1 oz., to one pint of alcohol, applied to the surface, followed by the leaves before named. Even a temporary application of sinapisms are not too stimulating to arouse action, in low forms of inflammation sometimes presented in this disease.

Abscesses have never formed as a result of erysipelatous inflammation, since I adopted the process of treatment above described. When called to cases where abscesses existed in consequence of unskillful treatment, I have always opened them freely, and kept them open until the healing process was fully accomplished.

Blisters, sometimes occurring in erysipelas, should be opened, to prevent their communication, and loss of cuticle before a new one is formed. The raw surface produced by desquamation of the cuticle, may be dressed with simple cerate, lettuce leaves, &c.

Gangrene may sometimes be arrested by applying compound tincture of myrrh, followed by charcoal and yeast cataplasms. After it has taken place, the fetor may be corrected by emollient dressings, to which creasote, pyroligneous acid, chlorinated water, soda, or lime, may be added, as gentle stimulants.

Metastasis of the disease may often be relieved by applying active stimulants to its original seat, such as sinapisms, ammonia, turpentine, &c. In cases of great danger, it is sometimes necessary to raise a quick blister, and use other revulsive measures.

Article XIII.

GLANDERS.

SEN.—*Equina*.—*Morre*.

This is a malignant febrile disease, contracted by man from glandered horses, characterized by a peculiar inflammation of the nasal passages, a peculiar pustular eruption, attended in general by suppurating, bloody, or gangrenous tumours. It may be acute or chronic.

Acute Glanders.—The first symptoms, which appear from three days to a week after inoculation, are those of an attack of fever, accompanied with which are acute rheumatic pains in the joints and limbs. Soon an eruption of phlyzacious pustules appears in successive crops on the face and limbs, of a dark purple hue, about the size of the vaccine vesicle. Along with these pustules are gangerous bullæ, especially on the face and scalp; ecchymoses filled with reddish sanies; and large tumors, which soon suppurate and form deep abscesses.

Later in the disease the nostrils discharge a yellowish, or dark and offensive muco-purulent matter, generally viscid and tenacious, adhering to and excoriating parts which it touches. The nostrils are obstructed, face inflamed, and features mutilated by swelling and gangrene.

The general symptoms are hot skin, dry tongue, laborious respiration, frequent and feeble pulse, extreme thirst; diarrhœa, with offensive discharges, fetid odor of the body, delirium, coma, and at length involuntary discharges, prostration and death. The disease lasts from one to two weeks, and is generally fatal.

Chronic Glanders is very rare and the symptoms mild. It may continue several months. The pustular eruption is not found in this variety.

The Cause—is a poison generated in the horse (hence the name, *equina*,) and other animals of the same class, as the ass and mule, affected with glanders. It may be imparted by

contact with an abraded part, or through the medium of the atmosphere. Debilitated constitutions most susceptible.

Treatment.—Many methods have been employed, as detailed by different authorities, none of which have met with satisfactory success, and it is useless to give them here.

Emetics, followed by five-grain doses of carbonate of ammonia, in water, every two hours; the podophyllin and ext. dandelion pill, one or two a day, to keep the bowels freely open; compound syrup of stillingia, or syrup of corydalis formosa; and gargles of chloride of soda, or lime, are among the best measures within my knowledge.

Injections of a solution of creasote into the nostrils, and the same agent internally, in chronic affections of this kind, are very beneficial. In the place of this I have found half an ounce of borax, and one drachm of the tincture of bloodroot, in eight ounces of rose water, injected into the nostrils, and a gargle of the same, to have a better effect.

An *issue* to the arm or nape of the neck is often an excellent auxiliary in treating this disease.

Tonics and *stimulants* are necessary, such as wine, or porter, and nourishing food; topical alkaline or saline ablutions, followed by frictions to the surface, should not be omitted.

Article XIV.

DENGUE.

SYN.—Breakbone Fever.—Dandy Fever.—Dunga.

This is an epidemic febrile disease, first described by Dr. Rush, of Philadelphia, in 1780, and characterized by rheumatic symptoms and cutaneous eruptions.

Symptoms.—The general phenomena of fever first appear, accompanied with violent pains in the back, limbs and joints, and soreness and stiffness of the muscles. This lasts from twelve to twenty-four hours, when a remission occurs. After an interval of a few days the symptoms return. Tongue is coated, nausea, but no vomiting, pain in the head, eruption on

the upper portion of the body, sometimes resembling scarlatina, sometimes like measles, and often pustulous, attended with heat and itching, and usually terminating in desquamation. The complaint subsides about the eighth day; in intensity there is every grade; sometimes mild, at others the constitutional symptoms are alarming, as great debility, slow, weak pulse, cold sweats, livid appearance of the eruption, &c.

It is distinguished from yellow fever by the rheumatic symptoms and eruption, and by its uniform tendency to terminate favorably.

Cause.—This is undoubtedly an epidemic influence. Its peculiarity consists in the great number attacked in proportion to the population, resembling, in this respect, influenza. It attacks all ages, colors, and sexes.

The Prognosis is almost always favorable. Death is generally owing to some incidental complication, or previous debility of the patient.

Treatment.—An emetic employed at the beginning often arrests its progress. Some gentle aperient may be given to keep up free action of the bowels. When the skin is hot and dry, apply the cold water pack, and give one teaspoonful of the sudorific tincture in a warm infusion of balm, sage or catnip. Remove the pack in about three hours, and wipe the surface dry. This promptly relieves the exquisite pain, and subdues the fever.

The warm saline bath often affords immediate relief. When the system is much depressed, warm toddy, composition tea, porter, or even brandy, may be indicated.

The *expectant* plan, such as rest in a recumbent position, cold to the head, hot pediluvia, and a well regulated diet, is generally all that is necessary to effect a recovery.

CLASS II.

CONSTITUTIONAL DISEASES.

This title does not exactly designate the affections belonging to this class, but this somewhat arbitrary application is made for the sake of brevity. Others belong to it, but as a matter of convenience I shall consider them elsewhere.

Article I.

RHEUMATISM.

Some pathologists consider this as only a common inflammation attacking the *fibrous* tissues, and that the disease derives its peculiarities, solely from the character of the tissues involved. There is reason, however, to believe that it is peculiar in its nature, and that any tissue in the body may be attacked by it.

Varieties.—Authors usually notice *four* varieties; the *acute* *subacute*, *chronic* and *nervous*.

Acute rheumatism, usually attacks the larger joints. A considerable amount of fever either begins with, or soon follows the local inflammation. At first, sometimes a single joint is affected, others following in succession; at other times, several joints are simultaneously involved. Other tissues may also be attacked, as the muscular, areolar, and dermoid. The fever is of the *sthenic* character. Pulse full and strong, the tongue thickly coated, excessive pain in the joints, much increased by the slightest pressure or motion. There is also a copious, acid perspiration. The inflammation is very apt to shift from one joint to another, and especially to fix upon the heart or pericardium, causing endocarditis and pericarditis, of which *delirium* gives significant warning. The fever is occasionally *adynamic*. There is an increase of fibrin in the blood in this disease, which sometimes amounts to ten parts in a thousand.

Causes.—The most frequent is exposure to cold and damp, after free perspiration, especially in constitutions predisposed. Children under eight years old rarely have it, and it seldom occurs in the aged. The disease is also hereditary.

Prognosis.—It usually gets well under proper treatment. A complication with heart disease constitutes the chief danger. This, also, generally yields to correct, active treatment. If children under four years of age have it, in them the disease is dangerous.

Subacute rheumatism.—This is a very common form; occurring generally in the muscles. The joints and their investments suffer occasionally, however. The pain is severe, but the fever and swelling are not as intense as in the acute form. When in the muscles, it causes pain on movement; in the mucous membrane of the bowels, it produces diarrhœa; in the bronchial tubes, catarrhal symptoms, &c.

When seated in the muscles of respiration, it is called *pleurodynia*; in the muscles of the back, *lumbago*; in the scalp, *hemicrania*; in the neurilemma of the sciatic nerve, *sciatica*. It may attack the bowels, giving rise to colicky symptoms; the diaphragm, inducing difficult breathing; the uterus, producing dysmenorrhœa; the heart, giving rise to angina pectoris, and often to organic disease of that organ. The disease may continue many months, and often resembles neuralgia.

Causes.—Same as the acute—but occurring in different constitutions; being less plastic matter in the blood. It is not dangerous, except when it attacks some vital organ, as the brain or heart.

The *Chronic form* usually fixes upon the joints and their investments. Fever, heat, and usually redness, are absent; but an obscure, dull pain, worse at night and in damp cold weather. The joints are apt to become permanently swollen and stiffened. It is either the result of the acute form, or produced by the same cause, modified by the constitution.

Nervous Rheumatism.—In this form there is no inflammation, but only a disorder of sensation or function; it is analogous to nervous gout.

The nature of rheumatism is not well understood. The striking peculiarities of the inflammation are, that it never suppurates, and is much disposed to metastasis. Some ascribe it to an excess of acid.

Treatment of Acute Rheumatism.—Dry cupping, sinapisms and volatile liniment to the course of the spine, hot saline pediluvia, sinapisms to the feet, and tepid saline or alkaline bathing of the surface, are among the chief external remedies indicated.

Internally, an emetic at first; then give common physic and cream tartar sufficient to open the bowels freely, followed by three grs. of the common diaphoretic powder, with two grs. of pulv. bloodroot, once in four hours, until six doses are taken.

When the disease assumes a periodic form, which is quite common in this country, with morning remissions and evening exacerbations, I usually prescribe, in combination, vin. colchi. 2 oz., quin. sulph. 25 grs.; a small tea-spoonful every two hours, or oftener, until it operates freely upon the bowels. This may be preceded, if need be, by eight or ten grains of diaphoretic powder, taken at bed time, to promote gentle diaphoresis and sleep. A warm infusion of boneset, prickly-ash and bloodroot, during the exacerbation of fever, is very beneficial. Ext. hyosciamus and lobelia, two grs. of the former to one of the latter, once in four hours, will allay irritation, and render the patient comfortable and quiet.

Subacute Rheumatism requires permanent counter irritation over the spine; such as cupping, followed by the issue plaster, and revulsives to the feet and general surface. Use the following pill; ext. poke berries, and white pine pitch, of each 20 grs., macrotin, 10 grs.; mix and form into twenty pills, one of which may be taken once in four hours, until all rheumatic symptoms are relieved. The wine of colchicum, and quinine, may be used as a substitute for the pills, with a dose of the diaphoretic powder at bed time, every night. Under this course of treatment, I have never had a case degenerate into the chronic form.

Chronic Rheumatism requires a more decidedly tonic and alterative process of medication. The state of the general system claims our particular attention. To promote the functions of digestion, nutrition, secretion, excretion and assimilation, are the plain indications. Not a single case of this kind can occur, without a marked derangement of the digestive apparatus, which always impedes, more or less, the proper action of the other functions named.

Emetics, repeated twice a week, are required to facilitate a speedy and permanent recovery. The hepatic functions require aid ; and for this purpose take ext. taraxacum 20 grs, podophyllin 5 grs. and leptandrin 5 grs. ; form into ten pills, one of which may be given every night. The following tonic bitters, or something similar, will greatly improve the tone of the digestive organs :

- | | |
|---|----------|
| R. Prickly-ash bark, (<i>Xanthoxylum fraxinum</i>)..... | oz. iij. |
| Seneca snake root, (<i>Polygala senega</i>)..... | oz. ij. |
| Tansy leaves, (<i>Tanacetum vulgare</i>)..... | oz. j. |
| Yellow puccoon, (<i>Hydrastis Canadensis</i>)..... | oz. ij. |
| Tamarac bark, (<i>Pinus pendula</i>)..... | oz. iv. |
| Gum guaiacum,..... | oz. ss. |
| Turkey Rhubarb, (<i>Radix Rhei</i>)..... | oz. j. |

Coarsely pulverize, mix, and make an infusion of two ounces in one pint of water ; add a gill of simple syrup and one pint of best Holland gin. The patient may take one tablespoonful every three hours, during each day.

Local remedies.—Water poured from the spout of a vessel a distance of four or six feet, for two or three minutes, upon an affected joint, followed by friction with volatile liniment together with gentle movement of the joint, often produces decided benefit. Thoroughly sweating the joint, over hot vapor of bitter herbs, and friction as above, once or twice a day, will also be found highly useful. The shower bath, followed by general friction, with flannel, electricity, &c., are means of acknowledged usefulness in this disease.

Such patients should wear clothing of an animal fabric, next to the skin ; such as silk in summer, and flannel in winter, to guard against the effect of a cold and humid atmosphere, absorbing too much electricity from the system, and taking

cold. Sudden atmospheric changes have very deleterious effects upon cases of this kind.

Nervous Rheumatism must be treated almost exactly like an analogous variety of gout, and the process of management in this affection will be mentioned under that disease.

Syphilitic Rheumatism requires the use of a syrup of *corydalis formosa*, in which there is two drachms of iodide of potassa to one pint of the syrup, given in such a manner as that the patient shall take from three to five grains of the iodide three times a day.

In *metastasis* of rheumatism to the brain, or any internal organ, active irritants, as sinapisms, turpentine, or quick blisters, should be applied to the original seat of the disease. Revulsives to the feet, sinapisms to the nape of the neck, and spine, and fomentations to the head, in case the brain is affected.

Article II.

GOUT.

SYN.—*Arthritis*.

This is a constitutional disease, characterized by an excess of uric acid in the system.

There are three varieties described; the acute, chronic and nervous.

Acute Gout.—This occurs in adults, and those of vigorous constitution. It has a singular predilection for the metatarsal joint of the great toe, and extends to the smaller joints of the feet. The pain is acute and tearing, sometimes coming on suddenly in the night; at others, febrile symptoms precede the attack.

Symptoms of inflammatory action are present, as heat, swelling, redness and tenderness, together with turgescence of the neighboring superficial veins. In about eight hours, a remission of all the symptoms, except swelling, occurs,

lasting until evening, when the paroxysm is renewed, and continues in this manner for a week or more, when it goes off with copious perspiration, lateritious urine, or diarrhœa. Excessive itching is always present, and the inflamed cuticle ultimately desquamates.

If proper care is not observed, the fit recurs at intervals of a month or more, becoming more frequent and more severe, till at last, in some cases, the disorder becomes *chronic* and *habitual*. When the disease persists, the joints gradually become stiff and crippled, and deposits of *lithate of soda* are found in them.

Gouty persons are liable to various anomalous and dangerous affections of the internal organs. Sometimes cramp-pains in the stomach, coldness and deathly sickness; sometimes extreme pain of the heart, palpitation and dyspnœa; sometimes delirium, headache, or coma. These symptoms disappear on the appearance of gout in the foot. Such an attack is called *misplaced* or *retrocedent gout*.

Gouty persons are subject to inflammation of the eyes, lungs, and other parts, which prove very obstinate to treat.

Chronic gout, is usually the result of the acute. There is no fever, but a purplish color and œdematous appearance of the parts, from synovial effusions. It is apt to wander from joint to joint.

Nervous gout occurs in persons of hereditary gouty tendencies, but whose constitutions have been modified by a careful mode of living; hence its frequency in women and nervous men. Many cases of this kind have been mistaken for neuralgia. The pain may be dull or lancinating, fixed or fugitive, confined to a single part, as the head, or distributed over many parts. Often it displays itself in *disordered function*, as dyspepsia, dyspnœa, cough, palpitation of the heart, irregular pulse, syncope, &c. It may prove fatal by sudden retrocession to some vital organ.

Causes.—Predisposition or diathesis, either hereditary or acquired, always exists, and the slightest cause may bring on the paroxysm.

Nature.—Not well known. An excess of uric acid is said to exist in the blood, in this disease, but it is probably the *result* rather than the *cause* of the gouty diathesis.

Diagnosis.—The only disease with which it can be confounded is rheumatism. It differs from that disease in the following points:—1. Rheumatism attacks chiefly the young or middle-aged; gout, the elderly. 2. Rheumatism prefers the larger joints; gout, the smaller, and especially the feet and hands. 3. Gout produces more digestive disorder; the pain is more of a burning character, and the swelling greater and more vividly red.

Treatment of Acute Gout.—The proper treatment of this affection may be divided into that which is proper in the paroxysm, and that adapted to the intervals. The most effectual remedy during the former is colchicum, for its power of increasing the amount of uric acid and urea in the urine, and of thus carrying it off from the blood. From fifteen to thirty drops of the wine of the root, or from one to three grains of the acetic extract, may be given every four, six or eight hours, after the bowels have been thoroughly evacuated. If it produce considerable nausea, or much intestinal irritation, reduce the quantity. Other cases will require a larger dose to insure effect. It often modifies and abbreviates the paroxysm.

If the liver be torpid, the extract of colchicum three grains, and podophyllin half a grain, may be given at bed time, every night, until suitable hepatic action is induced.

When the kidneys are torpid, the urine scanty and heavily loaded with uric acid, half a drachm of cream tartar may be given three or four times a day, in carbonic acid water, and the colchicum may be taken at the same time.

A full dose of the diaphoretic powder, or sudorific tincture, may be taken at bed time to secure rest and ease from pain.

The diet should be low at first, but some latitude must be allowed to the intemperate. Afterwards it may be more generous, and vigorous exercise, especially on horseback, should be enjoined. All the functions should be carefully attended

to; the bowels kept regular, acidity of the stomach corrected, and all the secretions promoted.

In chronic gout, attention should be directed to the digestive and secretory organs; and acidity corrected. Iron, and also iodide of potassium, are excellent remedies. A long sea voyage usually effects a cure, in all curable cases.

The nervous gout must be so treated as to give the disease an external direction, by revulsives. If it is intermittent, the ordinary antiperiodics are the proper remedies. Anodynes are often required, of which aconite is the best. Tincture of aconite and chloroform is an excellent external application. If the disease suddenly attack the stomach, heart, &c., place the feet in strong, hot mustard water, apply sinapisms to the epigastrium and spine, and give warm stimulants internally. These should be soon followed by a full dose of castor oil and turpentine, to remove the offending matter from the stomach and bowels.

CLASS III.

LOCAL DISEASES.

Local diseases are those which have their primary or essential seat in any one organ, tissue or function. Constitutional symptoms frequently accompany local diseases, but they are generally secondary, as in the phlegmasiæ, in which the fever depends upon the inflammation. There are, it is true, among the following diseases, many which are the result of constitutional derangement, but in these instances the local affection is so striking as chiefly to engage attention.

This is the largest of the three classes in which I have arranged diseases; and I shall take the several functions in their order, commencing with the digestive, as the basis of the arrangement.

SECTION I.

DISEASES OF THE DIGESTIVE SYSTEM.

Article I.

STOMATITIS, OR INFLAMMATION OF THE MOUTH.

Common diffused inflammation.—This form may occur in patches, or may occupy the whole surface. Occasionally there is submucous infiltration and enlargement of the uvula. When confined to the fauces, it is called angina. The treatment consists in saline purgatives, and gargles of cold infusion of *hydrastis canadensis*, borax, or alum. Small pieces of ice held in the mouth till dissolved, will soon allay the inflammation.

Follicular inflammation consists in little enlarged prominences, scattered over the lining membrane. They are enlarged mucous follicles, and are sometimes disposed to ulcerate. The disease is usually chronic, and constitutes the “clergyman’s sore throat.” It often extends low into the pharynx; a low state of health favors its continuance, hence the necessity of constitutional as well as local treatment.

The constitutional remedies must be varied according to the condition of the patient. An issue upon one arm or between the shoulders—with *hydrastin* and iron internally, are generally useful. A gargle of infusion of *hydrastis* and bloodroot, and the local application of a strong solution of nitrate of silver, will be of service.

Apthous, or Vesicular inflammation.—Small white ulcers, either isolated or in patches, preceded by pearl-colored vesicles, characterize this variety. Children and adults are alike liable to it; it sometimes extends as low as the stomach.

Leptandrin and *hydrastin*, three times a day, with a local application of infusion of *geranium*, *hydrastis*, and *goldthread*, usually effects a cure in a very short period.

Thrush, or Muguet.—An inflammation, accompanied by an exudation of a whitish curd-like matter, in patches, generally confined to children, though occasionally occurring in adults, in the advanced stage of low diseases, as phthisis or dysentery. Little whitish spots appear about the corners of the mouth, and inside of the lips, preceded by redness; these run together and form patches, as above described, which can be scraped off. Infants, badly or artificially nourished, most exposed. It is not contagious; depends on constitutional derangement.

Treatment.—A laxative of castor oil and magnesia, if the patient be costive; but in case diarrhœa exists, administer neutralizing mixture, followed by an infusion of geranium and hydrastis. Attend also to the diet, fresh air, suitable exercise, saline bathing, friction, &c. Sometimes hydrastin and iron are indicated, in cases of great debility. Apply a mixture of equal parts of finely pulverized borax, loaf sugar and gum-arabic.

Ulcerative Inflammation.—Canker.—Any inflammation of the mouth may result in ulceration. But this affection consists in an ulcer from the very commencement. It occurs on the gums, inside of the cheeks, fauces and lips. Sometimes the ulcer is deep and destructive, and is accompanied by an offensive breath. It generally occurs in children of a debilitated habit, owing to a depraved state of the blood, though sometimes in those who are otherwise apparently healthy.

The *treatment*, in good constitutions, should be strictly antiphlogistic, as emetics, saline cathartics, low diet, sanguinarin, and ipecac in nauseating doses. The local application may be an infusion of gold thread and hydrastis, with borax dissolved in it.

In habits of great debility, leptandrin and hydrastin are indicated, triturated with loaf sugar and given at intervals of four or six hours, in doses as the bowels will bear, until the discharges are covered with bile. If there is diarrhœa, give an infusion of hydrastis and geranium. A local application

of an infusion of hydrastis and bloodroot, with a small amount of persesque carbonate of potash, may be necessary.

Gangrenous Inflammation is a peculiar form of disease—gangrenous from the first. It occurs most frequently in the inside of the cheeks, and gums. It is very destructive to the tissues involved, often causing necrosis of the bone, great exhaustion, and even death. It occurs in unhealthy children, in miasmatic districts, &c.

Obviate the depressing cause by good diet, pure air, tonics, &c. The local measures are, tonic and astringent applications, strong solution of sulphate of copper, tincture iron, infusion of bayberry, &c.

Mercurial Inflammation.—Metallic taste in the mouth, redness and swelling of the gums, and soreness when pressing the teeth together; stiffness of the jaws, increased flow of saliva, toothache, often sore throat, whitish exudation along the gums, and the glands of the mouth swollen and painful. The breath from the commencement has a peculiar offensive smell, which in bad cases becomes almost intolerable. The teeth become loosened, and ulceration and even sloughing may take place. I have seen many cases of this kind, which were truly exciting to human sympathy, and disgraceful to the dispensers of this irritating, corrosive poison.

Treatment.—In severe cases, keep the bowels freely open with seidlitz powders, or other mild aperients. Infusion of hydrastis or corydalis formosa, drank freely; with astringent and tonic gargles, such as a weak infusion either of galls, black alder, or upland sumach, red roses, hydrastis, or gold thread; and warm demulcents, as, pith of sassafras, ulmus, marsh mallows, &c, are the chief remedies. Nervines are usually requisite to allay nervous excitement.

Article II.

GLOSSITIS, OR INFLAMMATION OF THE TONGUE.

This is an inflammation of the substance of the tongue ; is sudden in its attack, and rapid in its progress. The organ becomes so much swollen as to fill the entire mouth ; deglutition is difficult or impossible, and there is often danger of suffocation. It may arise from the usual causes of inflammation.

Treatment.—Holding ice in the mouth until the inflammation subsides, is always a reliable and effectual remedy. Abstinence from food, cold demulcents held in the mouth, hot mustard pediluvia, active aperients, and nauseating enemas. It is a disease which seldom occurs ; the cold demulcents and ice are usually sufficient.

Article III.

MORBID DENTITION.

During the process of dentition, children are more liable to disease, and that is the most fatal period of life. The sensibility of the system is the most acute, and is not blunted by habit. The epidemic diseases, such as measles, whooping cough, mumps, scarlatina, &c., are apt to attack them at this period of life.

The investing membrane of the tooth, and the gum over it, against which the body of it presses in its progress of development, and is absorbed in consequence of this pressure, are the parts which chiefly suffer ; though the roots may occasion distress, by incommoding the dental nerves. The irritation occasions tingling, itching and vague uneasiness, difficult to bear, ; and the child seeks relief by biting hard substances, or by pressing them against its gums. Serious constitutional disturbances, especially of a nervous character, are induced, which are often speedily relieved by lancing the gums.

During dentition, the saliva flows freely, the child is restless, fretful, peevish, and wakeful; putting its fingers in the mouth, rubbing the nose, and sometimes screaming violently and almost incessantly. The inflammation may extend to the adjacent parts, affecting the absorbent and salivary glands, and the mouth becomes hot and dry.

The sympathetic effects of dentition are in proportion to the amount of the local irritation, and can be borne according to the condition of the constitution, and age. The brain is apt to suffer from the peculiar mobility of the nervous system of infants. Hence wakefulness, restlessness, spasmodic movements, and even convulsions. The respiratory organs often suffer, and there may be spasms of the glottis, and very obstinate coughs may arise from this cause.

The alimentary canal is most apt to suffer. Looseness of the bowels, when not severe, is salutary in preventing too much determination to the brain. It often assumes a dangerous character, with vomiting, and great prostration, wearing out the strength of the patient. The skin is also a frequent seat of irritation, and various eruptive affections may result. Co-existing diseases are apt to be greatly aggravated.

Treatment.—The child should enjoy cool fresh air, and the bowels be regulated. Careful attention should be paid to the diet and drinks, with daily ablutions of the whole body. Attendant or consequent diseases must be treated as when they occur under other circumstances, remembering that diarrhoea and cutaneous eruptions often afford a safe outlet to the irritation, and should not be hastily removed, lest it fall dangerously upon the brain. Mothers are apt to be anxious about unsightly and troublesome disorders behind the ears, and urge their immediate cure. Do not listen to their entreaties until dentition is over, or its irritation removed.

Local treatment.—This is highly important. When there exists a mere irritation, the child may bite some hard substance, as a piece of silver, an india rubber or ivory ring. This should not be allowed if the gums are swollen. Free incisions should be made with a gum lancet, without hesita-

tion. Over the front teeth, only a single incision ought to be made, while the molar teeth require two or more. This process affords relief in two ways. It empties the congested blood vessels and relieves all pressure and irritation. Caution is requisite not to injure the enamel of the tooth. Cooling applications to the mouth may also be necessary, to relieve the inflammation.

Article IV.

ODONTALGIA, OR TOOTHACHE.

This scarcely deserves the name of a disease, it being only a symptom of various morbid states of the affected part; yet it is the most prominent feature of the affection it accompanies, and, from the suffering it induces, the practitioner is often required to render his aid for its relief.

Toothache offers every possible variety in degree, character, and duration. The pain may be dull, aching, heavy, sharp, pungent, throbbing, grinding or lancinating. It may be continuous or paroxysmal, remittent or intermittent, and regular or irregular in its recurrence. It may come in flashes, and as suddenly disappear; or may continue a long time with little variation.

Nervous or Neuralgic Toothache.—A purely neuralgic condition of the teeth is common. It may be seated in the nerve of one tooth; but it commonly attacks the nervous trunk from which several teeth are supplied; may affect the jaw rather than the teeth themselves. The pain is usually acute; may be mild at first, gradually increasing, and as gradually declining; usually irregular, moderate, then severe, darting through the dental arches. May be intermittent or remittent.

This variety of toothache more generally depends upon a morbid state of the nervous system, such as disposes to neuralgic pains generally. It may arise from a morbid state of

the nerve itself. It may be invited there by caries of a tooth, but often occurs when the teeth are sound.

Anything which disturbs the system may serve as an exciting cause. The most common are vicissitudes of weather, cold or hot applications, and especially if alternated. It may be sympathetic with a morbid state of the stomach, uterus, or other organs; not unfrequent in persons of gouty or rheumatic diathesis.

Treatment.—An emetic, and a cathartic, followed by tonics, seldom fail to give full relief. In slight cases a simple nervine is sufficient. Regulate the bowels, correct acidity of the stomach, and quantity and quality of the diet, drinks and habits, in all respects. Promote the secretions, by appropriate measures, in organs where a deficiency occurs. If rheumatic or gouty diathesis exist, wine of colchicum, hot pediluvia, and anodynes are proper. Intermittent cases require the usual course of antiperiodics.

Local treatment.—This consists in anodyne embrocations, poultices, sinapisms, tincture of aconite, cold water, ice, fomentations, galvanism, &c. Chloroform is the best of any remedy, and usually affords prompt relief. Carious teeth should be either cleaned or filled, or, in case they cannot be longer preserved, they should be removed.

Inflammatory Toothache.—This may exist with or without caries, but the former is the case in a majority of instances in this affection. *Caries* affect the internal surface of the tooth; the tissue is softened, a small cavity is formed, and the tooth decays rapidly, approaching the central cavity of the tooth, which is soon reached. Pain is now felt, and inflammation soon takes place, followed by suppuration and destruction of the pulp. Caries occurs in persons of depraved constitutions, and is encouraged by the habitual use of hot drinks, sugar, acids, &c.

The pain is less sharp and more regular than in the neuralgic variety; there is commonly some swelling, and pressure upon the tooth is painful. The inflammation often extends to the gums and face, frequently terminating in an ab-

scess. When this opens relief is obtained. Symptoms of constitutional disturbance are often present, such as fever, headache, and inability to sleep. The patient is liable, if he has carious teeth, to constant returns of this affection, until these are all destroyed by disease or artificially removed.

Suppuration may occur in the pulp or dental cord. If no opening exist in the tooth, and the tooth be not extracted, the ulcerative process may ultimately give vent to the pus through the alveoli of the lower jaw, or into the antrum of the upper, from which serious results may accrue. The pain is very severe before the escape of the pus, and the suffering very great.

Cause.—Exposure of the pulp, consequent upon caries or other destruction of the tooth. Vicissitudes of weather, retrocession of eruptions, suppression of discharges, translation of rheumatic or gouty inflammation, pressure of osseous concretions, and from direct violence.

Treatment.—Little general treatment is requisite. Saline cathartics, and abstinence from animal food will be well when the inflammation attacks neighboring parts; an opiate at night is sometimes necessary to procure sleep. Locally, sedatives, anodynes, and revulsives may be employed; as brandy or camphor held in the mouth, emollient and anodyne poultices to the face, sinapisms to the side or back of the neck, local vapor baths, &c., may be used, as indicated. As soon as an abscess forms it should be opened. When caries exists the cavity of the tooth may be filled with cotton saturated with laudanum, or some of the volatile oils, as cinnamon, cloves, creasote, &c. If these do not succeed, the diseased tooth must be extracted.

Article V.

FALLING OF THE TEETH.

Certain diseases may affect the alveoli and gums causing the teeth to fall out prematurely, although not themselves dis-

eased. This occurs in scurvy, in canker and gangrene of the mouth, and occasionally as a consequence of mercurial inflammation of the gums. After the loss of the body of the teeth by caries, the roots are sometimes cast off through ulceration and absorption of the alveoli, occasioned by their irritating influence.

The gums may swell and assume a deep red color, producing a thickening of the periosteum, and elevation of the tooth. This condition is relieved, but soon recurs, and by its frequent returns, the tooth is lifted out of the socket, while the gum retreats from the neck, leaving portions of the root exposed. The alveoli undergo absorption; and the tooth, deprived of support, falls; the gum heals and the patient is restored to comfort. A few teeth are attacked at once, sometimes only partially, and at others wholly destroying them.

Causes.—Long continued trouble, pregnancy, cessation of the catamenia, improper diet, drinks, and other irregularities in physical habits.

Treatment.—Wash the mouth with cold salt and water after every meal, and well regulate the mental and physical habits. Use no tooth brush.

Conjoint suppuration of the gums and sockets comes on insidiously, at first a slight oozing of purulent matter from behind the edges of the gums when they are pressed. They may be swollen, soft, disposed to bleed, and slightly painful before suppuration; and occasionally a real phlegmonous abscess in the gum appears when the disease commences. After a time the periosteum of the fang and socket takes on the suppuration and matter escapes freely between the gums and teeth. The front of the teeth decay first, but the whole socket is ultimately involved. The gums at first appear of a natural color, then a deep red, and the teeth are loose and painful. The ulceration goes on, the socket is absorbed, and the teeth fall out. After the removal of the teeth the gums heal readily. This disease begins between the ages of thirty-five and fifty, more often in women than men, more especially at the cessation of the menses.

Causes.—Residence in low damp places, the action of mercury, tartar about the teeth, depressing emotions, suppression of hemorrhoidal fluxes, recession of eruptions, scrofula and syphilis. It may be hereditary, and caused by any thing which deprives the teeth of vitality.

Treatment.—There is no other effectual remedy, but the removal of the teeth as soon as they become loose. Astringents and stimulants, locally applied, may be tried, and every appropriate measure used which will promote the general health. When the disease first appears, improving the general health, and the establishment of an issue, may arrest its progress. Alteratives and tonics, such as corydalis formosa, iodine, cod-liver oil, &c., may be useful in cases complicated with scrofula and syphilis.

Article VI.

ANGINA, OR INFLAMMATION OF THE FAUCES.

This includes all those parts behind the mouth, visible when the mouth is wide open, and the tongue depressed. They are the half arches, velum pendulum, the uvula, the tonsils, and the upper part of the pharynx.

Common inflammation of the fauces.—There is pain in swallowing, and the fauces are of a bright red colour, slightly swollen, with small whitish patches, heat, dryness, and hoarseness. Mucus secretes, and is sometimes bloody. The uvula is swollen and elongated, with more or less cough and tickling in the throat, and sometimes vomiting. The disease may not induce fever, though it sometimes does, if the tonsils inflame.

There is a species of angina which is *erysipelatous*, of a dusky hue, with almost a total inability to swallow, from a paralysis of the muscles of deglutition, and with great constitutional prostration. The case may prove fatal within two or three days, if the inflammation be not arrested.

Chronic Angina.—The disease may become chronic, in which there is constant sensation of heat, slight redness, and

alterations and remissions may continue for months. The membrane irregularly thickens, with prominences of enlarged follicles. Ulcers may form, either superficial or deep seated, producing loss of substance, and there is hawking and cough. It may extend to the eustachian tube, in this or the acute form, causing dulness of hearing.

Causes.—Exposure to cold and moisture; swallowing irritating and corrosive substances, acrid eructations from the stomach, &c. It may be gouty or rheumatic, and is apt to occur in scrofulous habits. The acute form occurs at all periods of life.

Treatment.—Saline cathartics, abstinence from animal food, gargles of alum water. In severe cases, refrigerating diaphoretics, nauseants, and sometimes emetics. All acidity of the stomach should be corrected, and the nourishment should be soft. External rubefacients may be employed, and the neck should be guarded against cold. Mucilaginous gargles, used cold, will be useful; the patient should talk but little, and avoid hawking and coughing.

In the *chronic* form, astringent and caustic applications, with appropriate constitutional measures, according to the nature of the case. The uvula must be clipped if there is a permanent elongation.

Article VII.

TONSILLITIS, OR INFLAMMATION OF THE TONSILS.

SYN.—*Cynanche tonsillaris.*—*Amygdalitis.*—*Quinsy.*

Symptoms.—Difficulty of swallowing, heat in the fauces, pain shooting through the ears, chills, alternated with flushes of fever; the voice is changed and the hearing often impaired. The tonsils are red and projecting, and may swell so as to touch each other, the tongue much coated; other parts are also drawn into inflammation and swelling. The pulse is full and strong, with great restlessness and indisposition to sleep. If the disease be not subdued, it usually tends to suppuration.

Causes.—The most frequent cause is exposure to change of temperature, especially to cold, when the body is warm and perspiring. A predisposition often exists to attacks on the slightest exposure.

Treatment.—At first a free application of a pencil of good lunar caustic to the tonsils, followed by cold mucilages held in the mouth, will often subdue the disease. Later in the case the caustic must be omitted. A free saline purge, with nauseants, internally. Hot mustard water, pediluvia, ice or cold mucilage in the mouth, light fluid diet, and an early scarifying of the tonsils, are the best measures. Emetics are of little service, only to clear the throat of secretions, or to break the abscess.

Chronic enlarged tonsils should be occasionally scarified, and followed by the immediate application of a strong solution of alum. Tincture of iodine, or nitrate of silver, may be tried, and when these measures fail, the tonsils should be removed with a proper instrument.

Article VIII.

PHARYNGITIS, OR INFLAMMATION OF THE PHARYNX.

This is commonly called “sore throat.” The general symptoms resemble those of tonsillitis; there is less fever, however, and no difficulty of respiration. The pharynx presents a dark-red appearance. There is difficult deglutition, and a copious secretion of mucus from the part. The cause is the same as produces tonsillitis.

The treatment is the same as inflammation of the fauces, though gargles have less effect.

ABSCESSSES OF THE PHARYNX.—These may occur in various positions, and from different causes. One in the cellular tissue posterior to the pharynx, and between it and the cervical vertebræ, is a very important affection.

Symptoms.—The back part of the fauces project, visible to the eye, and sensible to the fingers; the latter may detect

fluctuation. When lower down it cannot be easily recognized. Deep seated pain at the pharynx, tenderness on pressure, without stiffness of the neck, great difficulty of swallowing, loss of voice, dyspnœa and laborious breathing, leads us to suspect its existence. The chief danger is from suffocation.

Diagnosis.—The seat of the pain, and the difficulty of swallowing, are the principal diagnostic signs.

Treatment.—Open the abscess, and be cautious to strike at the median line, and thus avoid severing any considerable artery.

Article IX.

GASTRITIS, OR INFLAMMATION OF THE STOMACH.

This disease is situated in the mucous membrane of the stomach, and may be acute or chronic; the latter is most common.

Acute Gastritis.—Heat and acute pain over the stomach, increased on pressure, or by coughing, or deep inspiration; vomiting of the ingesta, constipation, and prostration of strength. The pulse is quick, small and irregular; the tongue clean, and red at the point and edges. The skin is hot and dry; there is thirst, and a desire for cold drinks; the action of the heart is often much depressed. Later, symptoms of collapse appear; the extremities are cold, great prostration, delirium, tympanitis, and finally death.

Cause.—The chief causes of this form are external violence, acrid poisons, and cold drinks taken while the body is hot.

Treatment.—Remove or neutralize any offending matter, by copious draughts of warm water, or bland fluid, with a little ipecac added, and an appropriate antidote to any existing poison. Follow this with a full dose of castor oil and turpentine, with cold mucilaginous drinks, aiding the former by enemas of mucilage and common salt. Apply sinapisms over the stomach, abdomen, and at the feet. If the fever be high, the skin hot and dry, and thirst very urgent, attended with

persistent vomiting, repeatedly swallowing small pieces of ice is the most reliable remedy in my knowledge. At the same time put the patient into a cold water pack, and renew it every hour, until the fever all subsides. I have treated numerous cases of acute gastritis with these means, and have never failed to obtain prompt relief.

Great care is requisite during convalescence, not to take any thing into the stomach which will tax its powers or generate acids or gases. Counter irritation should be kept up over the epigastrium, until all tenderness on pressure in that region disappears. Mucilaginous drinks should be continued until the tongue becomes natural, and all tenderness of the stomach and abdomen subsides. The bowels may be kept open with injections.

Chronic Gastritis.—This may be the result of the acute form, but is usually an original disease. The *symptoms* are pain and uneasiness in the stomach, worse after meals; sense of constriction of the œsophagus, near the lower part of the neck; imperfect digestion, accompanied by eructation, nausea, and occasional vomiting of food, or of mucus streaked with blood; skin dry, but not warm; pulse nearly natural, but sometimes accelerated; tongue covered with a whitish fur, red at the tip and edges, or dotted with red spots. As the disease advances emaciation is very obvious, and the patient exhibits symptoms of hypochondriasis. The disease may last for years, varying in its intensity.

Ulcers are always found in the stomach after death; the mucous coat is thickened and softened and the follicles enlarged. The ulceration may extend to the colon, liver, spleen, and peritoneum.

Treatment.—The first indication is to put the patient upon a proper regimen and prohibit all improprieties of eating and drinking. The food should be taken slowly, and thoroughly masticated. Correct hepatic derangement, if any exist, and secure perfect equality in the circulation. The functions of the skin should be well performed. Direct the patient to practice, daily, saline ablutions of the entire surface, followed

by frictions. The shoulders should be kept back, and the sternum not allowed to press upon the stomach. The patient should cultivate a cheerful disposition, take out-door exercise, and adopt correct habits in all respects. Active medication is improper, and food should be taken only at the regular meals. A cold infusion of green boneset, hydrastis and gum arabic, taken in doses of one table-spoonful every four hours, is attended with good results. Slight counter-irritation over the stomach should be continued until all tenderness upon pressure is relieved. A decoction or infusion of staphylea, taken as just mentioned, is a reliable tonic, and will not aggravate the symptoms.

Flatulence may be relieved by a few drops of oil of anise, at intervals of four hours, or more, as required. Two grains of hydrastin every four or six hours, I have found very useful in this disease. The neutralizing mixture is a good remedy to alleviate acidity of the alimentary tract.

Article X.

INDIGESTION, OR DYSPEPSIA.

This disease is characterized by a depression of the functions of the stomach, though symptoms of irritation now and then occur.

Symptoms.—Weakness and heaviness in the epigastrium; a vague sense of uneasiness, extending from the stomach to the shoulder, when the former is empty, amounting to positive pain when full. This pain is usually of a neuralgic character, (*gastralgia*), or it may be spasmodic. The appetite is much deranged, sometimes voracious, at others entirely wanting; sour eructations, and regurgitations of indigested food often occur. Various disordered sensations, as headache, giddiness, cough, palpitation of the heart, low spirits, &c., are present. In the morning the patient is languid, and the tongue is covered with a whitish fur; bad taste in the month; bowels always irregular, generally constipated; derangement of

the hepatic function ; the skin is dry, and the pulse often natural. Emaciation gradually comes on, attended with a pale, sallow skin. It not unfrequently terminates in chronic gastritis.

Symptoms not invariably present, and which arise from an irritable state of the stomach, are *heartburn*, from the presence of acid in the stomach ; *pyrosis*, or *water-brash*, consisting of thin, glairy eructations, and occurs chiefly when the stomach is empty ; *spasms* or *cramps*, with depressed pulse, cool skin, *sick-headache*, &c.

Causes.—These are various ; any thing which depresses the energies of the stomach, and destroys its susceptibilities, as sedentary habits, errors in diet ; abuse of alcohol, opium and condiments ; excessive study, the use of coffee, tobacco, depressing mental emotions, &c.

The depressing influence, however produced, deranges or vitiates the gastric secretions, and interferes with the peristaltic action of the stomach.

Treatment.—Regulating the habits of the patient is paramount to all other considerations, for without this all efforts to promote recovery will prove abortive. With this prerequisite, a judicious medication will generally modify the symptoms and hasten recovery.

It is scarcely possible to suggest all the measures to meet the particular modifications of each individual case ; these must be varied by the good judgment, experience and skill of the practitioner, according to the nature of each case, and the peculiar diathesis of the patient. The treatment must necessarily be of a general character. You must determine the quantity and quality of the food, the amount of exercise, and the appropriate remedies.

Hygienic treatment.—The food should be easy of digestion, and nutritious. Most kinds of wild game, tender beef, rare cooked, and codfish, are admissible. Also, ripe fruits and vegetables, such as mealy potatoes, roasted, baked or boiled, and light bread, at least one day old. New milk and cream are proper, if there exist no constitutional objections ; the latter is mostly always excellent. Butter may be allowed in

some cases, though not in all. Mutton, venison, the white flesh of chickens and turkeys; and raw oysters, are highly proper in most cases; brown bread, made of unbolted flour, is the best.

But a small amount of liquids may be taken at meals, or during the process of digestion. Black tea, or cold water are probably the best drinks, and should be used in moderate quantities.

The patient should partake of but a few articles, and a moderate quantity at a time; the food must be taken slowly, and thoroughly masticated. Cheerfulness should be a constant attendant at meals.

Exercise is of equal importance in its quantity and quality, with that of diet and drinks. It should be performed in a manner calculated to promote vigor and health. A person who has been accustomed to hard labor must have much more exercise than one of sedentary habits. Horseback riding is a practice which brings all the functions of the system into action, and is therefore preferable to any other, when it can be borne. Exercise should be omitted just before and immediately after meals.

Exercise of the mind, by frequent diversion of thought to attractive and pleasing objects, is even more beneficial than that of the body. The state of the mind may control the bodily functions to a very great degree; therefore concentration of thought and "a brown study," are inadmissible in these cases. Constant and uniform cheerfulness, with correct habits of diet, exercise and rest, are the chief curative measures.

Medicinal treatment.—If any one organ be more remiss than another, in the performance of its functions, address suitable remedies of a gentle and unirritating character to it. See that the functions of all the organs are assisted and supported in their action. If the stomach and bowels be loaded with crude ingesta, a gentle emetic should be given, followed by a mild cathartic. Aperients should be continued, if the bowels are torpid. Simple pure tonics, taken at regular intervals, are proper; such as hydrastin, prunin, eupatorin, sal-

icin, and cornin. *Bone's Bitters*, of the American Dispensatory, may be taken before each meal in many cases of indigestion, with decided benefit. If, in females, there is marked uterine inaction, half a grain of macrotin may be required, three times a day. If acidity of the stomach exists, a little soda and magnesia are proper correctives. Daily saline or alkaline bathing, followed by brisk friction over the entire surface, is required.

Spasm of the stomach is a distressing symptom, which may afflict certain individuals. A copious draught of warm water, or infusion of scullcap, or nerve root, will usually relieve. A tea-spoonful of sudorific tincture, in warm tea, gives speedy relief; and a few drops of chloroform, in mucilage of gum arabic, I have never known to fail.

Article XI.

ENTERITIS, OR INFLAMMATION OF THE BOWELS.

This term is intended to designate an inflammation of the small intestines. Duodenitis, or inflammation of the duodenum, is usually associated with gastritis, and yields to the same treatment. It may be acute or chronic.

Acute Enteritis commences with uneasiness, slight griping pains in the bowels which gradually increase in frequency and severity. The abdomen, about the umbilicus, is tender to the touch; more or less fever, diarrhœa and tympanitis; the latter especially in children.

When the muscular or peritoneal coat is involved, constipation takes the place of diarrhœa. The pulse is more or less excited, skin dry, urine scanty, tongue moist and slightly furred. The disease is often mild; cases frequently occur, however, which require the most judiciously directed resources of our art. Inflammation and even ulceration of the cœcum may occur, from accumulation of fecal matter, or from foreign bodies, as seeds of fruits, in the *appendix vermi-*

formis. This state is termed *typhlitis*, and is recognized by pain in the right iliac region, obstinate constipation, aching in the loins, &c.

Causes.—Exposure to cold, irritation from crude injesta in the bowels, drastic purges, acrid secretions from the stomach, liver, &c., are the chief.

Diagnosis.—Distinguished from peritonitis by less pain and tenderness on pressure, less vomiting, constipation, &c. In colic the pain is more severe, occurs in paroxysms, and is relieved by pressure.

Treatment.—Apply cold continuously to the entire abdomen, and warm stimulants, such as sinapisms, bottles of hot water, &c., to the extremities. A table-spoonful of castor oil with one drachm of turpentine, internally; followed by large enemas of cold mucilage of ulmus, which may be repeated every hour. Let the patient hold pieces of ice in the mouth and swallow them frequently. If the cathartic does not operate after four hours, give as much more, and when the bowels have acted freely, continue the injections every four hours, and give cold mucilaginous drinks, until the preternatural heat and tenderness have entirely subsided. Cloths wet with cold whisky should still be applied to the abdomen for a day or two, and an active circulation kept up in the extremities. By this process I have always been able to promptly subdue this dangerous disease, and have never lost a single patient. When this course is skillfully pursued, the nausea and vomiting, pain, heat, fever, and all symptoms of inflammation soon disappear, and the patient falls into a state of quiet repose.

During convalescence the diet should be easy of digestion, and great care is requisite to avoid fatigue, exposure to cold, and a consequent relapse.

The chronic form is of common occurrence, most cases of chronic diarrhoea being of that nature. The number of stools does not usually exceed two or three in twenty-four hours, and they may be feculent, bloody, or mucous. There is more or less pain, more severe at certain periods after eating; fe-

brile symptoms generally present towards evening. In protracted cases the patient becomes emaciated, the skin is dry, tongue red and gashed, and the spirits depressed. Its obstinacy usually depends on the presence of tubercle, which fact is revealed by autopsy.

Treatment.—A tepid water pack, morning and evening, followed by frictions of the surface, sinapisms to the feet and abdomen, or other counter-irritation, and warm mustard water pediluvia, are the appropriate external applications.

Put the patient on a diet of rice, cream, stale bread, and other simple substances, and give the following preparation: Rhubarb, peppermint, wild cherry bark, *aa* one drachm; pulverize, digest in one pint boiling water, and add a drachm of sup. carb. soda, half a gill of best brandy, and one ounce of loaf sugar; dose one table-spoonful every four hours. This is an excellent tonic, antacid, and mild aperient, giving tone and action to the sluggish and weakened mucous surfaces. The functions of the liver and kidneys are restored when the local disease is subdued. An irritating plaster over the entire abdomen will be required when the disease is obstinate. In 1842, while residing in the state of Ohio, I was the subject of this disease, as a sequel of acute enteritis, and my life despaired of. I applied the irritating plaster to the entire abdomen, for four weeks, which, with the other means I have mentioned, effected a speedy cure. Since that period I have succeeded in every case by a similar course.

Article XII.

COLO-RECTITIS, OR DYSENTERY.

SYN.—*Colitis.*—*Bloody Flux.*

Dysentery is an inflammation of the mucous membrane of the colon and rectum.

Symptoms.—Gripping pains or *tormina*, of the abdomen, very severe before going to stool, and somewhat relieved by the discharges, which are very frequent, amounting sometimes

to forty or fifty in a day. The first two or three evacuations are feculent and acrid, rather abundant; afterwards they are small, and consist of mucus or blood. *Tenesmus*, or straining at stool, is a constant and characteristic symptom, and considerable soreness of the abdomen. The smell of the stools is at first disagreeable, but not fetid—towards the last they are of a cadaverous, penetrating fœtor. In violent cases colliquative diarrhœa sometimes comes on a few days before death. Tongue at first white, afterwards brown, rough, and dry along the middle, with a *red and moist border*; in very protracted cases the tongue and fauces become aphthous. The stools are never covered with bile. The skin is always dry.

The disease is sometimes associated with a typhous condition, which imparts to it a low and dangerous character, and has caused it to be regarded as contagious. Another complication is with miasmatic fever, especially in the United States.

Prognosis.—Mild cases recover in ten or twelve days, but it is frequently a dangerous and fatal disease. Bloody stools generally more favorable than mucous. Colliquative diarrhœa towards the close, very unfavorable; bile appearing in the stools, favorable.

The *acute* sometimes terminates in the *chronic* form. The stools are less frequent and more feculent. There is occasional pain on pressure, with some tormina and tenesmus. The pulse, skin, and tongue are much the same as in chronic enteritis, with which the disease is often complicated.

Anatomical characters.—The mucous membrane of the colon and rectum is generally found ulcerated, thickened, soft, and pulpy. Other portions of the intestines may exhibit traces of inflammation. The liver is often found enlarged, and in a state of sanguineous congestion.

Causes.—Exposure to cold damp air; acrid, indigestible food; marsh miasmata. Prevails most in autumn, and by some is considered contagious.

Treatment.—When there is derangement of the stomach, indicated by nausea and vomiting, commence with an emetic. As soon as this has operated sufficiently, put the patient in a

cold pack, and administer a full dose of castor oil and turpentine. If the fever continues renew the pack every two hours. A flannel should be thrown around the wet sheet so as to exclude the air when the patient is moved or exposed. An enema composed of six ounces of mucilage, or starch, and fifteen drops tinct. opii., every two hours, will greatly relieve the sufferings of the patient, and subdue the local inflammation. If the bowels are tender, apply a sinapism to the abdomen. A bed-pan must be used, when an evacuation is desired, for movement greatly aggravates the griping and tenesmus.

Cold mucilaginous drinks may be freely taken, unless nausea continues; in such case allow pieces of ice to be held in the mouth, or swallowed, until the nausea subsides. By these measures I have usually been able to subdue acute dysentery within twenty-four hours, if called early in the disease.

If called later in a case of sporadic dysentery, move the bowels by oil and turpentine, and then give one teaspoonful of pure olive oil, in cold mucilage, every three hours, and add the same amount to each of the injections before named. This will act as a mild aperient, and enable the bowels to rid themselves of morbid accumulations. Enemas of infusion of geranium are sometimes required to act as a mild astringent and tonic in advanced cases. While the fever continues, use the pack, and cold applications to the bowels. After it subsides, use warm fomentations alternated with tepid whisky or alcohol and water, and at the same time a teaspoonful of syrup of rhubarb with fifteen drops of sudorific tincture, may be given every three hours, to insure rest and support the natural peristaltic action of the bowels.

The diet may be cold cream, or wheat flour gruel, rice gruel, corn starch, arrow-root, &c.

Intermittent and remittent dysentery are not uncommon in malarial districts, and in such localities be very careful to inquire after symptoms indicating periodicity. In such cases the usual antiperiodics are highly proper, during intermissions or remissions, in addition to the treatment before mentioned.

Worms in the intestinal canal sometimes occasion so much irritation as to induce dysentery. They should be removed by an appropriate vermifuge and then treated as an ordinary case.

Chronic Dysentery requires a different process of management from that of the *acute* form. It will not yield readily to any course of medication, and requires perseverance and skill to secure a permanent recovery. Nor can this result be uniformly secured, for it may be continued until extensive ulceration of the mucous membrane and follicles of the bowels, and perhaps other organic lesions have occurred.

The compound neutralizing aperient, mentioned when speaking of chronic enteritis, is one of the best remedies in this disease. An infusion of raspberry leaves and geranium, used as a drink or injection, is often an excellent auxiliary in treating this disease. A syrup of blackberry roots is also often beneficial. A variety of remedies are needed, as a change will be required in the progress of the disease. Astringents are improper when constipation exists, until after the bowels have been moved by mild, unirritating aperients.

When the discharges show evidence of ulceration, one-eighth of a grain of nitrate of silver, placed in the center of a one-grain pill of opium, may arrest the ulceration.

Attention to the condition of the skin is of great importance, such as daily alkaline or saline bathing, and frictions, for the determination of the fluids to the surface, and an active state of the skin is of great importance to facilitate recovery.

The diet is of great importance; it should be easy of digestion, and nutritious. It must be eaten slowly, well masticated, and taken in moderate quantities at a time.

Article XIII.

COLIC.

Symptoms.—Severe griping and twisting pains in the abdomen, coming on in paroxysms, with freedom from pain during the intervals; the pain usually comes on suddenly, attended with borborygmi and retraction of the abdominal muscles. If very violent there is great prostration of the system, with a cold skin and feeble pulse. Vomiting is occasionally present, and when the contraction is low down in the intestines is often of a stercoraceous character.

Bilious Colic occurs in summer and autumn, and is so called from the bilious vomiting and other symptoms of hepatic disorder. In this variety the pains are more acute, the skin and eyes are yellow, and there is tenderness over the region of the liver.

Causes.—The most common are irritating ingesta, flatulency, or a morbid sensibility of the mucous membrane; miasmata frequently give rise to it, especially the bilious variety.

Other varieties are the *gouty* and *neuralgic*.

Treatment.—First, determine the exciting cause of colic; whether it be organic disease, such as hernia, intussusception, tumors, &c.

If only simple colic, give a full dose of castor oil, turpentine and sudorific tincture; bathe the feet in warm water, and facilitate the action of the physic, if necessary, by stimulating enemas.

In *stomachic colic*, with nausea, use a mild emetic, or copious draughts of warm water, or ginger tea, and open the bowels freely.

In *bilious colic* an emetic, followed by a cathartic of podophyllin and leptandrin, aided in its action by stimulating enemas, with sinapisms over the abdomen and at the feet, are the proper measures. I have often found it most expedient to give a full dose of oil and turpentine, and enemas, first, and clear the alimentary tract of offending matters, before

any particular attention is paid to the hepatic functions. After which alterative doses of the resinoids just mentioned may be given, at intervals of four hours, to regulate the liver. Fomentations over the abdomen are often of service, as also the warm bath.

Rheumatic or *gouty colic* should be treated with a mild cathartic, followed by an anodyne and wine of colchicum.

Neuralgic colic requires nervines, tonics; as aconite, &c.

COLICA PICTONUM.—PAINTER'S COLIC.

This is a variety of colic caused by exposure to the poison of lead; hence its frequency with painters.

Symptoms.—Violent pains in the umbilical region, sickness, and obstinate constipation; pains in the wrists, ankles and neck; headache; bitter eructations; and occasionally paralysis of some of the voluntary muscles.

Treatment.—This disease is usually best treated by free purgatives and anodynes. The warm bath, and large injections of warm water and lobelia, in addition, will be requisite to overcome the obstinate constipation.

Dilute sulphuric acid, made after the manner of lemonade, and extreme cleanliness, are the best preservatives from the poison of lead.

Paralysis of the limbs sometimes accompanies lead colic, and remains after the removal of that disease. In such a condition the bowels must be well regulated, and the least inclination to constipation must be promptly remedied. A generous diet, frictions with stimulating liniment over the limbs and spine are necessary. The paralytic limb should be supported in splints.

ILEUS.

This complaint consists of very severe colic, with obstruction of the bowels, and generally ends in inflammation.

Symptoms.—Violent griping and twisting pains at the umbilicus; obstinate constipation, vomiting of stercoraceous

matter; tender abdomen; pulse at first natural, and skin cool, but soon febrile symptoms set in, followed by hiccough, prostration, cold sweats, sinking and death.

Morbid appearances.—Mechanical obstructions of the bowels, caused by knots; intussusception; adhesions, bands of false membrane, strangulation of the gut, or constriction of its calibre; foreign bodies, &c. Invagination of the intestine most frequently occurs in children, recognized by a painful tumour over the invaginated portion.

Treatment.—The pathological conditions requisite to constitute a case of ileus, almost preclude the idea of a recovery. Copious enemata, frequently repeated, thrown high up into the bowels, by means of a flexible tube, and mild purgatives in moderate doses, together with the warm bath, may be tried. Small quantities of lobelia added to the enemata, have a tendency to relax the bowels. I have known an instance where tobacco leaves saturated in warm water and applied to the bowels, with the measures already mentioned, succeeded. If the bowels cannot be moved, quiet the patient by anodynes, and nourish him by enemata.

Article XIV.

PERITONITIS, OR INFLAMMATION OF THE PERITONEUM.

This term is more particularly applied to those portions of the peritoneal sac which do not invest any of the viscera.

Symptoms.—Acute pain in a part of the abdomen, gradually extending over the whole belly; pain is acute and constant; sometimes fixed, at others wandering. The abdomen becomes tumid and very painful to pressure. Position on the back, with the thighs flexed; bowels constipated, and moved with much difficulty; pulse usually small, hard and quick; tongue white and moist, the edges often red; nausea and vomiting; face pale, countenance anxious, respiration accelerated and costal; urine scanty, and constant wakefulness throughout the disease. When the disease arises from perforation of the

intestines, it is sudden and rapid in its course, and attended with great prostration.

Morbid appearances.—Partial injection of the sub-serous tunic; effusion of lymph into the cavity of the abdomen; adhesions between the folds of the intestines.

The *causes* are those of inflammation in general; besides which are, external violence, metastasis, disease of the mesenteric glands, extravasation of blood, urine, bile, &c.

Treatment.—Cold continuously applied, to the abdomen, warm and active stimulants to the extremities, with the cold pack, often renewed, when the skin is hot and dry. The patient should swallow pieces of ice to allay vomiting and gastric excitement, and large, cold mucilaginous enemata should be administered every hour to secure early action of the bowels, as also to act as a sedative in the excited state of the abdominal viscera.

An emetic or infusion of lobelia and boneset is indicated where there is much derangement of the stomach, and a cathartic is usually necessary to relieve the constipated state of the bowels.

If the disease be moderate, and result from cold, a warm diaphoretic tea, hot pediluvia, with fomentations to the abdomen, may be sufficient. But when the attack is severe, the treatment first named is the most reliable. If the disease continue to the third day, another emetic, followed by a cathartic of castor oil and turpentine, will be required, and the skin should be kept moist by means of renewed packs, or frequently sponging the surface. The diet must be light throughout the course of the disease.

The tympanitic state of the abdomen, during convalescence, may be relieved by enemata containing turpentine, and by a dose of assafoetida at intervals of four to six hours. If the case has continued until the patient is much reduced, sustain with tonics and stimulants.

Chronic Peritonitis, when not the result of the acute form, is gradual and insidious in its approach; often serious organic disorder or effusion takes place before the physician is call-

ed. The *symptoms* are slight occasional abdominal pains, increased by pressure; fulness and deep-seated tension of the belly, feverishness and emaciation. Enlargement of the mesenteric glands, which usually presents similar symptoms, also ascites, frequently attend this disease.

Morbid appearances.—The peritoneum thickened; adhesions of the bowels; effused turbid serum in the abdomen; sometimes patches of ulceration in the bowels; omentum thick, red, and fleshy.

Treatment.—Aperients, antacids, diaphoretics, tonics, carminatives, fomentations, warm bath, frictions, and nourishing diet; and if anemia exist, iron will be required. If the disease be obstinate, an irritating plaster over the entire part affected, is the most efficient remedy.

Article XV.

WORMS.

There are three species of worms which most commonly inhabit the intestinal canal, viz: the *ascaris lumbricoides*, *ascaris vermicularis*, and *tænia*.

The *lumbricus* is a round worm, varying in length from four to twelve inches; the tail ends in a blunt point; the head is sharp.

The *ascaris vermicularis* is very thin, and does not exceed an inch in length, but it is usually shorter; the tail terminates in a fine point. It inhabits the rectum.

The *tænia* is a very long, flat worm, articulated, and furnished with four suckers at the head. They infest the small intestines.

The following symptoms usually attend the presence of worms in the alimentary canal; paleness of the face, eyes dull, pupils dilated, bluish circle around the lower lids; sympathetic irritation of the nose and anus; foul breath; headache; impaired appetite; nausea, vomiting, griping pains

about the umbilicus; frequent slimy stools, or constipation; tenesmus; disturbed sleep, fever, emaciation, &c. In young children cerebral disturbances, or convulsions occur. The *lumbricus* cause gnawing pains at the umbilicus; while *ascarides* produce itching about the anus. The appearance of worms in the evacuations alone can render us certain of the correctness of the diagnosis.

Treatment.—The object is to destroy or expel the parasitic animals, and to prevent their return. Various remedies, termed *anthelmintics*, are administered. Common purgatives may expel them.

Some suppose that worms are harmless in the intestinal canal, but this is very erroneous. In prescribing for the removal or destruction of worms, it is well to confine the patient to a spare and liquid diet, and give two or three mild cathartics two or three days previous to administering anthelmintics. After this preparatory course, take one ounce of spigelia root to one pint of water, boil down to half a pint, sweeten, and let the patient drink of it in the course of three or four hours; follow this with a dose of castor oil and turpentine. This method rarely fails of removing the *lumbricoïdes*. Worm seed, garlic, &c., are often used with much success.

The removal of the *ascarides* is often very difficult. Remedies in the form of enemata, are the most efficacious. Exhibit three or four aloetic purgatives, every second day, together with two or three enemas of a solution of common salt, daily. Injections of a solution of aloes, of lime water, or of an infusion of any ordinary anthelmintic, will sometimes remove these troublesome vermin, in great numbers. An injection of spirits of turpentine in warm, sweetened milk, often removes large quantities of them.

Tape-worm has been removed most readily by the use of the male fern, valerian, bark of the pomegranate root, pumpkin seeds, and spirits of turpentine. The turpentine in doses of one-half to two ounces, with castor oil, has proved the most efficient in my hands. The condition of the bowels

should be carefully regulated and all errors of diet avoided. Worms are usually found where indigestible and unripe food is used.

Article XVI.

DIARRHŒA.

This consists in frequent feculent stools, generally copious, always more liquid than natural, commonly attended with griping, nausea and foul tongue; but no fever or tenesmus. The state of the surface is generally normal.

Varieties, Causes, and Treatment.—These are very various, and so must be the treatment adapted to the various cases.

1st. *Inflammatory Diarrhœa.*—This variety, characterized by pain, tenderness, thirst, and slimy evacuations, arises from irritation, inflammation or ulceration of the intestines, and is an attendant of fever, phthisis, &c. It may be relieved by injections of starch or mucilage, and laudanum; by small doses of hydrastin, leptandrin and pulv. ipecac; rubefacients or fomentations to the abdomen; neutralizing mixture, infusion of hydrastis, &c.

2d. *Diarrhœa from irritating or unwholesome food* in the intestines. This is a very common form, and tends to work its own cure; is best accelerated by a dose of castor oil and turpentine, or the common physic, rhubarb and magnesia, &c.

3d. *Diarrhœa from debility and relaxation.*—This may follow either of the others; is recognized by the kind of constitution in which it happens. Pain, and all active symptoms, are usually wanting. The various vegetable astringents and tonics are the remedies.

4th. *Diarrhœa in young children* often occurs from the change and irritation of weaning, or from an unnatural quality of milk, or from bringing up children by hand. Place the child on a

diet of cracker water and cream, slightly seasoned and sweetened; give mild tonics and astringents and there will be little difficulty afterwards.

The natural action and warmth of the skin should be promoted and preserved in all cases of diarrhœa. This is of the greatest importance.

Article XVII.

CHOLERA MORBUS.

This disease depends on a peculiar irritation of the mucous membrane of the intestinal canal.

Causes.—Constant exposure to a high temperature producing congestion of the liver; indigestible food; putrid miasmata; certain seasons.

Symptoms.—Severe griping pains, followed by frequent vomiting, and purging of greenish bilious matter; spasms of the abdominal muscles, and also those of the extremities; tongue dry, urine high colored, scanty or suppressed; thirst urgent; pulse frequent, soon becoming small and weak. The pain and spasms soon become more violent, the countenance is anxious and collapsed, and the strength much reduced.

Treatment.—Sinapisms to the abdomen and feet, large draughts of warm infusion of catnip, or chicken tea, are proper in the early stage. If caused by crude ingesta, a mild emetic, followed by a cathartic of castor oil and turpentine, will be required. The urgent thirst and persistent vomiting is best allayed by holding ice in the mouth, and by swallowing small pieces of the same, until all thirst and nausea is subdued. Nothing else should be taken into the stomach until the active symptoms are quieted. Injections of starch and laudanum are sometimes necessary, to allay spasm and quiet the pain; small doses of morphine are also beneficial for the same purpose.

If the surface becomes cold, and symptoms of exhaustion

appear, apply ammonia and turpentine liniment, over the abdomen, and envelop the body and limbs with warm flannels, sprinkled with capsicum. Administer stimulants, such as camphor, ammonia, brandy, &c., combined with aromatics.

When the more urgent symptoms have subsided, peristaltic action should be promoted by the neutralizing mixture, and enemas; light nourishment may be allowed during convalescence.

Article XVIII.

CHOLERA INFANTUM.—SUMMER COMPLAINT OF INFANTS.

This is one of the most fatal affections to which childhood is subject, prevailing in large cities during the hot months of summer. It seems to be a disease peculiar to the United States.

The period of *dentition*, or *second summer* of children, is the time when they are most liable.

Symptoms.—Profuse diarrhœa; the discharges light colored and thin; soon followed by great irritability of the stomach, constant vomiting and purging, languor and great prostration.

Febrile symptoms are usually present; as quick, small pulse, often tense; tongue furred, skin dry and harsh; head and abdomen hot, and extremities cool, or cold. Delirium sometimes occurs, indicated by violent tossing of the head; attempts to bite, wild appearance of the eyes, &c. As the disease continues, the emaciation becomes extreme, the eyes languid and hollow, and the features contracted. The child lies in an imperfect doze, with half closed eyelids, insensible to external impressions. Death may result in six hours.

If the disease is to terminate fatally, the body becomes cold and clammy, of a dingy hue, and often covered with petechæ; the tongue is dark, and the fauces dry; the abdomen becomes tympanitic; discharges dark colored, profuse and offensive, resembling the washings of stale meat; at

other times they are small and consist of mucus and undigested food.

Treatment.—The causes, whatever they may be, should be removed. If they continue, all efforts to effect a cure will prove abortive. The child should enjoy a pure, bracing atmosphere, if it can be attained by a change of locality. If nursing, it should be confined exclusively to the breast; if weaned, or from some physical inability of the mother the child does not nurse, it should be fed cracker water and cream, tapioca, arrow-root, or ground rice, and cool mucilaginous drinks. A tepid alkaline or saline bath should be employed morning and evening; the clothing should be dry and light, and the apartment well ventilated. The limbs and extremities must be kept warm, and the head and shoulders elevated and cool.

Examine the gums, and if found hot and swollen, lance them freely. All sources of irritation should be removed from the alimentary canal by laxatives and antacids. The neutralizing mixture answers these indications better than any other within my knowledge. If this does not allay nausea and vomiting, a small piece of ice may be placed in the mouth, and repeated if necessary. Mild counter irritation over the stomach and abdomen may also be necessary.

When the disease has the character of diarrhœa, with no bile, leptandrin triturated with loaf sugar may be given in small doses, every six hours, until bile is visible in the stools. Follow this with an infusion of geranium and wild cherry, which are valuable astringent tonics and nervines in such cases.

Oil of turpentine, as an alterative, should be administered with mucilage, in doses of five drops, once or twice a day, throughout the course of the disease. This remedy is an excellent one to allay mucous irritation, in all cases. Every means should be employed to render the skin active, and to equalize the circulation.

Article XIX.

EPIDEMIC CHOLERA.

This disease is characterized by frequent and violent vomiting and purging, rice water discharges, with severe griping, and cramps in the extremities.

Symptoms.—There is generally a *premonitory diarrhœa*, with occasional nausea, slight cramps, and heaviness about the head. In other cases the attack is sudden, beginning with pain and tension in the epigastrium, speedily followed by violent vomiting and purging. The discharges are at first watery, *without bile*, afterwards of the characteristic *rice water* appearance. Excessive and painful spasms of the abdominal and other muscles occur; the pulse becomes quick and small, and is imperceptible at the wrist; the skin is cold, features collapsed, and urine entirely suppressed. As the vomiting and purging continue, the powers of life quickly fail; the extremities become deadly cold, and of a bluish color; the breathing is laborious, and the patient rarely survives ten or twelve hours.

Morbid appearances.—The blue color of the extremities is observed after death. The intestinal canal is pale throughout; the characteristic appearance is the absence of the epithelium, which often appears in shreds, looking like false membrane. The veins, and right side of the heart, contain a quantity of dark, grumous, and uncoagulable blood, which is deficient in salts and serum. The arteries are empty. The viscera are gorged with dark venous blood; the bladder empty, contracted and hard.

Nature.—The peculiar poison seems to produce local irritation of the stomach and bowels, and at the same time, general depression, with a tendency to universal exosmosis of the watery portion of the blood.

Treatment.—The obvious indications are to allay irritation, and stimulate and sustain the system against the depressing influence of the poison.

In the *forming stage*, or that of diarrhœa, it may usually be arrested by one tea-spoonful of sudorific tincture, with one table-spoonful of aromatic syrup of rhubarb, every one, two or four hours, as the urgency of the case requires; always requiring the patient to lie down, and remain quiet.

An emetic of bloodroot and lobelia, aided by a warm infusion of capsicum, should be promptly given if the stomach is loaded with indigested food, which is often the case. Follow the emetic with one table-spoonful of castor oil, one drachm of turpentine, and one of laudanum. When the oil is seen in the dejections, give one tea-spoonful of laudanum and one of the tincture of catechu, to quiet the bowels. If there is much prostration, the patient must be allowed sufficient brandy to keep the pulse at the natural standard.

In the *second stage*, which is the one in which the physician is first called, an emetic and cathartic may be requisite to remove crude ingesta. For this purpose I prefer common salt, one oz., capsicum, one dr., in one pint of warm water; give one gill every ten minutes, until free vomiting is induced. This alone, in some cases, will effect a cure. But, if diarrhœa continue, give tincture capsicum, sudorific tincture, tinct. catechu, and spirits of turpentine, one drachm of each, in mucilage of gum-arabic, and repeat every hour until all symptoms of cholera subside.

The patient should not be allowed to rise from bed. Sinapisms to the abdomen, spine, feet, ancles, wrists, and thighs, will be of essential service; while bottles of hot water, or hot bricks, should be placed to the feet and around the limbs, and the patient should be wrapped in hot flannel, and sufficient brandy administered to keep the pulse distinctly perceptible at the wrist, and nearly natural in force. The limbs should be held straight, to prevent spasms, and frictions should be made over the contracted muscles, to allay spasms as much as possible.

The urgent thirst and excessive nausea is best allayed by holding ice in the mouth, and swallowing small pieces of the same. The physician must appear cool and self-possessed and

give the patient and his friends the most decided and earnest assurance of recovery. Otherwise the depressing influence of fear, will preclude the possibility of a favorable termination.

If you are called in the *third*, or *stage of collapse*, stimulants, internally and externally, should be vigorously applied, in addition to the means already mentioned. In a few cases I have aroused the patient from apparent death in the stage of collapse, by an injection of brandy and tinct. capsicum, and succeeded in perfect restoration by the other means mentioned.

I have sometimes given half a pint of brandy at a single dose, when first called, if the pulse was imperceptible at the wrists, and it was soon distinctly felt. It should be repeated sufficiently often to keep up a good general circulation. The apartment of the patient should be well ventilated, but fanning the face, which is always too cool, should not be allowed. I have had extensive practice in seasons of epidemic cholera, and have never lost but two patients, or only about two per cent, while the disease proved singularly fatal under the treatment of other physicians around me. I therefore recommend the process of treatment I have given, with great confidence of its success.

The treatment should be modified to meet the different grades of the disease in different constitutions.

SECTION II.

DISEASES OF THE RESPIRATORY SYSTEM.

Article I.

CATARRH.

This is the term used to designate an inflammation of the respiratory passages, accompanied with a discharge. The fe-

ver which usually attends is called *Catarrh fever*. When it prevails epidemically it is termed *influenza*.

It receives different names according to the part affected; *coryza*, when confined to the nose and adjacent sinuses; *laryngitis*, when seated in the larynx; *bronchitis*, when in the bronchial tubes.

CORYZA.

This affection is usually confined to the Schneiderian membrane, though it may invade the frontal sinuses, known by the pain across the forehead; also the antrum, causing pain in the cheek. The symptoms are those so well known as "cold in the head." They run their course in two or three days, and rarely need medical treatment. It is very troublesome and even dangerous in infants; when sucking they cannot breathe through the mouth, and the nasal passages being obstructed, there is danger of asphyxia. Chronic coryza, or ozæna, is attended with an offensive purulent discharge, and may be associated with caries or scrofula. An injection into the nostril of a solution of sesqui-carbonate of potash may be used, followed by appropriate constitutional treatment.

LARYNGITIS, OR INFLAMMATION OF THE LARYNX.

There are three varieties of this disease. The *mucous*, *sub-mucous*, and *pseudo-membranous*; the latter constitutes a form of croup, and will be treated of as a distinct disease.

Mucous Laryngitis.—This is the mildest form of the disease, and usually manifests itself by slight hoarseness and cough, with some difficulty of respiration; pain in the larynx, which is reddened. Secretion soon takes place and the symptoms all subside.

Sub-mucous Laryngitis.—This differs from the first variety rather in degree than character; and extends to the subjacent areolar tissue. It commences, usually, with a chill; followed by fever, with a strong pulse, hot skin and flushed face. These

are succeeded by sore throat, hoarseness, great pain in the larynx as though a foreign body had lodged there; painful stridulous cough; great difficulty of breathing comes on, inspiration whistling and laborious, expiration comparatively easy; deglutition often impossible. During the paroxysms of coughing the face is swollen and livid, eyes turgid and prominent, and some cerebral disturbance. The cough, at first dry, is now attended with a thin, acrid discharge, which in favorable cases becomes bland, thick and transparent.

In fatal cases the symptoms are all aggravated; mucous membrane swollen, rima glottidis contracted, preventing ingress of air to the lungs. The patient sits up in bed, tosses about his limbs; the eyes are protruding, and a convulsive struggle usually closes the scene. In cases which terminate more slowly, death is owing to want of due aeration of the blood circulating in the brain.

Causes.—Exposure to cold, external violence, inhalation of noxious gases, or of very hot air, or steam. It may result from angina and tonsillitis.

Treatment.—This should be prompt and efficient, if the disease assumes a severe form. In mild cases, stimulating liniment over the throat, warm pediluvia; or the opposite course, such as an application of a cloth wrung out of cold water and applied to the throat, with drinking a large draught of water at bed-time, will generally relieve entirely before morning.

If the case is severe, the patient should hold ice in the mouth, use hot pediluvia, followed by sinapisms to the feet and throat, and if the skin be hot and dry, indicating a high grade of febrile reaction, the patient should be placed in a cold pack, and it should be renewed every hour until all fever subsides.

Acetous tincture of bloodroot and lobelia, with molasses, may be given in one drachm doses every hour, as an expectorant, or the dose may be increased to produce emesis in case of threatened suffocation from accumulations in the throat.

Laryngotomy should be early employed, where other measures fail, in very urgent cases. If long delayed, it is of no

use; especially if the disease has extended into the bronchi. Holding ice in the mouth until dissolved, has in my hands been attended with good results. Laxatives should be given if the state of the bowels require them.

CHRONIC LARYNGITIS.

This differs much in degree and danger. The causes which develop the *acute*, may, in scrofulous constitutions, produce the *chronic* form, or may be the result of it. Common cases usually recover; when *ulcerations* occur the prognosis is more unfavorable. The *symptoms* are hoarseness, sometimes amounting to complete aphonia; hawking and slight laryngeal cough. *Ulceration* is indicated by a sharp pricking pain on speaking and coughing, and sometimes suffocative paroxysms. Occasionally the cough is loose, with a muco-purulent discharge. The disease not unfrequently terminates in phthisis.

Treatment.—Absolute quietness of the voice; diet as the strength requires; an irritating plaster over the throat until relieved; application of a solution of nitrate of silver, with a probang, to the inflamed parts; these are among the most efficient and reliable measures. If the uvula is elongated and swollen, it must be excised; and the tonsils, if greatly enlarged and hardened, should be treated in the same manner.

The *constitutional treatment* is highly important. Begin with a gentle emetic, followed by alterative and aperient doses of podophyllin and leptandrin, as the case may require. Two grains of hydrastin, with one of bloodroot, may be given every six hours, and a dose of Bone's bitters before each meal, to give tone and activity to the digestive organs.

The scrofulous form must be treated with cod-liver oil, iodine, iron, &c. In the *syphilitic* variety, syrup of corydalis formosa and iodide of potassium, must be relied upon. Attention should be paid to the skin; the patient must enjoy regular rest, proper diet, a fresh pure atmosphere, and a cheerful and hopeful state of mind. In these last forms the

issue plaster may be applied over the spine, between the shoulders.

BRONCHITIS, OR INFLAMMATION OF THE BRONCHIA.

This is a very common disease, and differs greatly in degree, from a slight cold up to a very dangerous disease.

Symptoms.—In a decided case there is a sense of constriction in the chest, increased by coughing; respiration accelerated; cough dry and painful at first, but afterwards expectoration of a clear tenacious mucus takes place, which gradually becomes opaque and purulent. Febrile symptoms are usually present. As soon as expectoration is established the symptoms abate, and convalescence takes place in a week or ten days.

In severe cases the symptoms are much more intense. Great difficulty of inspiration, which is attended with a wheezing sound; the cough is more painful; great soreness of the chest, and increased fever. In children a purplish appearance of the face and extremities, cool skin, &c., occurs, owing to undue aeration of the blood, and is attended with considerable danger. In the aged it is apt to prove fatal. It is sometimes associated with asthma.

A congestive form of bronchitis occurs in aged and enfeebled persons, known as *suffocative catarrh*. It is characterized by excessive dyspnoea, and a copious expectoration of a thin, bloody mucus, which causes suffocation.

In this disease *percussion* is clear throughout the chest, except in cases of great congestion. The sounds produced by *auscultation* are, the *sibilant rhonchus*, if the disease is in the smaller tubes; the *sonorous rhonchus*, if in the larger tubes; the *mucous rhonchus*, commingled with the others, heard as the disease advances, and as expectoration commences.

Causes.—Cold; inhalation of irritating gases, or of hot air; also epidemic causes, and a gouty or rheumatic tendency. It frequently attends measles, enteric fever, whooping cough, small-pox, scarlet fever, pneumonia and phthisis.

Sputa in Bronchitis.—The expectoration in the first stages, is a tasteless, transparent, watery mucus. As the disease advances, it becomes glairy and tenacious, like white of egg; or it resembles the jelly-like sputa of pneumonia. The viscosity is often greater if much fever and cough attend, but becomes less as the paroxysm subsides. In the last stage the sputa is streaked with blood. If the inflammation terminate in resolution, the sputa becomes opaque, yellow, white, or green; and is attended with marked remission of the symptoms.

Treatment.—All authorities agree that *emetics* are among the most useful remedies in this disease. Mild *aperients* are proper, but active *cathartics* are decidedly injurious. *Expectorants* of the stimulating kind should be used, such as polygala senega, acetous tincture of bloodroot and lobelia, ammonia, &c., are beneficial.

Sinapisms between the shoulders and at the feet, hot pediluvia, and a roller around the chest kept constantly wet with dilute tincture of lobelia, should not be omitted.

The *tepid water pack* must be employed while there is common heat of the surface. When the surface becomes cool envelop the whole body and limbs in warm flannels, and use stimulating liniments frequently along the course of the spine, with warm applications to the feet.

Diaphoretics of the mildly stimulating kind may be freely taken; such as infusion of eupatorium, asclepias tuberosa, sage, balm, ipecac in small doses, &c.

Inhalations of the steam of warm vinegar, or of hot infusion of bitter herbs, is of essential service, and often affords decided relief.

Large stimulating cataplasms to the chest, after the most active stage has passed, may take the place of the roller, and will prove very beneficial.

CHRONIC BRONCHITIS.

In many of its symptoms this disease strongly resembles phthisis, for which it was formerly often mistaken, from want

of proper means of diagnosis. It is frequently the result of the acute form, and may persist for years.

Diagnosis.—The *physical signs* are the sonorous, sibilant, and mucous rhonchi, heard throughout the chest, and the absence of the signs of chronic pleurisy, chronic pneumonia, and phthisis.

Prognosis.—Dangerous in its worst forms. It is not often directly fatal, but may become indirectly so, by deteriorating the system, and debilitating the lungs; the patient sinking under the supervention of acute inflammation of the bronchia or other part of the breathing apparatus. In cases of this kind, patients often die of diseases of the heart, which may be the cause or the result of the bronchial affection. It may be cured if not dependent on a more serious disease.

Causes.—Peculiarity of constitution, frequent cold, inhaling dust, irritating powders, &c. Hence stone-cutters, workers in metals, and those employed to cleanse feathers, hair, &c., are liable to the disease.

Treatment.—*Emetics*, occasionally administered, are the most important remedial means. An issue between the shoulders, made by the common irritating plaster, relieves the permanent irritation of the bronchia.

Expectorants of a stimulating character are essential to successful treatment. These should be constantly employed, and in such a manner as not to derange the digestive organs. *Inhalations* of the vapor of hot vinegar, or of warm infusion of eupatorium, hoarhound, and other bitter herbs, or iodine, are very useful.

Purgatives of a mild cholagogue character are decidedly beneficial. A pill composed of one-fourth of a grain of popodhyllin, and one grain of leptandrin, with extract of dandelion to form a mass, may be given every night, or as the case requires. Gentle stimulant tonics, such as English porter, Scotch ale, or brown stout, taken at meals, are very beneficial to the aged, or debilitated.

The diet should be nutritious, healthy and digestible, so as to improve the quality of blood. The meals should be regu-

lar and composed of such unobjectionable materials as the patient will relish.

Chalybeate tonics are required. Ten drops of muriated tincture of iron in a solution of fifteen grains of carbonate of soda, in two table-spoonfuls of water, three times a day, is a convenient and excellent remedy of this class; the dose may be gradually increased. As the patient improves, a more general stimulant and tonic will be required, such as the common gin bitters, which also acts as a diuretic, aperient, and gentle diaphoretic. The condition of the skin should be carefully improved in all cases where the mucous tissues are suffering from chronic disease. Bathing with alkaline or saline water, or with spirits, morning and night, accompanied with brisk frictions, should not be omitted.

Paroxysms of coughing may be alleviated, so that the patient can obtain sleep at night, by the use of a syrup made of equal parts of bloodroot, eupatorium, skunk cabbage and scullicap. A little paragoric may also be taken, if the syrup is not sufficient.

Gentle exercise in the open air, must be enjoyed, and the sleeping apartment well ventilated.

Article II.

CROUP.

The essential character of this disease is a combination of an inflammation of the larynx, and a spasmodic action of the muscles about the glottis. Mere *spasm* is not croup. There are two distinct varieties, the catarrhal and the pseudo-membranous; the former a very *curable*, the latter a very fatal disease.

Symptoms.—In the *catarrhal* form the paroxysm comes on suddenly in the night, with shrill inspiration and a characteristic croupy cough. This may continue for some time, with great restlessness, jactitation and distress. After a time the

skin becomes cool, the pulse feeble, the face purple, and general relaxation; the paroxysm now usually gives way, leaving behind a febrile condition. It may prove fatal by producing asphyxia in the paroxysm, or from the supervention of bronchitis, accompanied by excessive expectoration. It generally depends on a simple laryngitis.

In the *pseudo-membranous* form, the early symptoms may be the same as the catarrhal form; or they may be from the first of a peculiar character; with a muffled cough and voice, which soon becomes entirely suppressed; this arises from the exudation of a false membrane, and is a very dangerous symptom. The cough, at first dry, becomes husky and suffocative, with expectoration of a glairy mucus containing shreds of the adventitious membrane. As the disease advances all remissions cease, the pulse becomes accelerated, small, weak and irregular; the cough is less audible, but suffocative; the patient tosses about in distress, grasps convulsively at objects around him; throws his head back; seizes his throat as if to remove some obstacle to respiration, makes forcible efforts to expand the lungs; and finally dies in convulsions, or from exhaustion.

The cause of the peculiarity of this form of croup is probably owing to the plastic character of the blood, causing a tendency to fibrinous exudation. The effusion often extends into the bronchi.

Treatment—An emetic containing lobelia should be administered in the paroxysm. I prefer the acetous tincture of bloodroot and lobelia, rendered palatable by the addition of simple syrup. Warm pediluvia, sinapisms to the throat, spine and feet, nauseants and expectorants. The warm bath and a speedy cathartic, aided by enemas, may be required in severe paroxysms, in addition to the measures just mentioned. The treatment must be repeated until the disease yields. In cases of great debility stimulants must be employed, as carbonate of ammonia, wine whey, &c. Prompt and vigorous emetics are required to facilitate the expulsion of the false membrane, such as tea-spoonful doses of alum taken in mo-

lasses or honey. If all other measures fail *tracheotomy* may be performed.

Some mild cases may be relieved by administering sweet oil, lard, goose oil, or fresh butter and molasses, with warm pediluvia, &c.

I have treated croup very successfully in numerous cases, by keeping a cravat stuffed with snow or pounded ice to the throat, dissolving pieces of ice in the mouth, with hot pediluvia, and antispasmodic and nauseating injections. This course must not follow the other in the same case. Croup must be treated upon one or the other of these plans exclusively.

SPASM OF THE GLOTTIS.

This is sometimes, though improperly, called *spasmodic croup*. It is very different from the preceding disease. There is a sudden choking fit, caused by a spasm of the muscles that close the glottis. The patient has no fever, nor any morbid appearance about the throat; the disorder is purely functional. Children during the irritation of teething and weaning are especially subject to this affection.

Symptoms.—The child suddenly loses its breath, tosses up its arms, turns bluish about the mouth; and on recovering its breath, makes a long crowing inspiration. It may thus, often prove fatal.

Treatment.—Sprinkle the child's face with cold water during the fit. An injection of warm water, with a few drops of spirits of turpentine and a teaspoonful of tincture of lobelia in it, will give immediate and perfect relief. In the intervals, the bowels must be opened with castor oil and turpentine. The diet must be light and perfectly digestible, and the child put into the best possible state of general health.

Antispasmodics, in the form of a syrup composed of nerve root, crampbark, sculldap and skunk cabbage, equal parts, given daily, at intervals of a few hours, secures the patient against subsequent attacks, and promotes the general tone of the nervous system.

Article III.

PERTUSSIS.—HOOPING COUGH.

This is a contagious disease, seldom occurring twice in the same individual, and particularly attacks children, though persons of all ages are liable to a single attack of it.

Symptoms.—It commences with the ordinary symptoms of catarrh; the cough becomes convulsive after a few days; and recurs in fits at various intervals. Each fit is composed of a succession of sonorous coughs, interrupted at intervals by the peculiar *whooping* inspiration. This is owing to spasm of the glottis, and constitutes the pathognomic sign of the disease. The face becomes swollen and livid during the paroxysm; expectoration of a colorless phlegm, and sometimes vomiting. The paroxysms recur several times a day, more severe towards evening. The disease last from a few weeks to several months. Before it terminates, the paroxysms become shorter, lose their peculiar character, and are attended with an expectoration more decidedly mucous. The chief sources of danger are complications with bronchitis or pneumonia, or the supervention of cerebral symptoms. The younger the child the greater the danger. In the intervals of the paroxysms the patient coughs but little, and has rarely any fever.

Physical signs.—The sound of the chest on percussion is normal. In the intervals of cough, the respiratory murmur varies in different points of the chest; during the whooping inspiration, it is not heard except for a moment between each cough. As this disease frequently passes into pneumonia or bronchitis, frequent examinations of the chest are necessary.

At the first invasion, this disease may be mistaken for croup, or suffocative catarrh.

Morbid appearances.—The disease probably depends on a peculiar irritation of the eighth pair of nerves. When it terminates fatally, it is usually upon the supervention of peri-pneumonia, or cedema pulmonum; in the first case the lung

is slightly hepatized and contains sanguinolent serum; in the second there is abundant effusion of colorless serum.

Treatment.—This disease runs through its course to a favorable termination, in a majority of cases, without the aid of the physician. In the severer forms, treatment is highly useful, and, in complicated cases, is indispensable to safety. Hooping cough can be arrested at any time, whether in its forming, convulsive, or declining stage.

When the catarrhal symptoms are moderate, in the early stage, mild aperients, and a syrup of eupatorium and blood-root, equal parts, is all that is required. If fever and inflammatory symptoms arise, an emetic, followed by the cold water pack and a brisk cathartic, generally soon alleviate the excitement and irritation, to a great degree. *Antispasmodics* are required in the convulsive stage, when spasmodic symptoms appear. A syrup composed of nerve root, scullcap, crampbark, and skunk cabbage, with a little tincture of lobelia in it, administered at intervals of three hours, acts efficiently in controlling the spasmodic cough. An occasional mild emetic, with a view to its equalizing, tranquilizing and antispasmodic action, has a very salutary effect. *Assafoetida*, in emulsion, is very useful.

Belladonna, in a dose of half a grain of powdered root to a child one year old; and two and a half grains to a child two or three years of age, is an excellent remedy to procure rest, if taken at bed time. It is much used in Germany and France.

Lobelia inflata.—From ten to fifteen drops of the tincture of this plant, in simple syrup, given four or six times in every twenty-four hours, to a child one or two years old, is a most valuable remedy in hooping cough, and is often all that is required.

Tonics are required in cases of much debility. Hydrastin, in one grain doses, every four hours, is highly beneficial. Salicin, or quinine may be given with advantage when no inflammation exists.

External applications.—Daily bathing with mustard water,

followed by frictions; stimulating liniments and sinapisms to the spine and feet; a roller to the chest, wet with equal parts of lobelia and rose water, will be found useful if symptoms of inflammation exist.

Balsam Copaiva is a remedy of great value, when the disease has degenerated into chronic bronchitis and the expectoration is puruloid.

Inhalations of balsamic vapors; fumes of hot vinegar; and steam of bitter herbs, are often attended with much benefit.

The diet should be simple and unirritating, and much care must be used against taking cold and the influence of damp weather.

Article IV.

SPASMODIC ASTHMA.

The characteristics of this disease are great difficulty of breathing, attended with a sense of suffocation, great thoracic constriction, wheezing and cough. It is caused by spasm of the muscular fibres encircling the bronchial tubes, especially the smaller ones.

Symptoms.—The attack is usually preceded by premonitory symptoms; such as headache, drowsiness, itching of the skin, flatus, heartburn, acid eructations; fullness about the præcordia; weight over the eyes, &c.

The paroxysm generally comes on in the night, during sleep, commencing with laborious wheezing, and suffocative breathing; great tightness about the chest; countenance bloated and livid, sometimes pale; intense desire for cool fresh air; inability to lie down; pulse frequent and irregular, often intermittent; abdomen distended with wind, and extremities cold. After a few hours, some degree of cough and expectoration comes on, which affords temporary relief. A remission occupies the preceding day; the next night the fit is apt to

recur. The disease may be suspended for several months, but is liable to recur from slight causes.

The disease rarely occurs before the age of puberty. The predisposition appears to consist in an irritable and weak condition of the respiratory organs. It is often hereditary.

Causes.—Particular conditions of the atmosphere; irritating substances conveyed to the lungs; suppression of accustomed discharges; repercussion of cutaneous eruptions; metastasis of gout or rheumatism, and mental emotions.

Treatment.—The paroxysms may be promptly arrested, if no inflammatory action exists in the case.

Emetics are necessary, followed by castor oil and turpentine, if the stomach and bowels are loaded with crude ingesta. Otherwise they are of little use.

Lobelia inflata is decidedly the most valuable remedy we possess for arresting or mitigating the asthmatic paroxysm. It will often allay a fit of asthma in thirty minutes. It may be given alone, or in combination with eupatorium.

Skunk cabbage, administered in the form of warm infusion of the root, often gives prompt relief. The green root is the best.

Diuretics are useful in dropsical habits. A copious flow of urine is always a very favorable indication. *The prophylactic* remedies are tonics; such as iron, tonic bitters, mild aperients, moderate exercise, light and digestible diet, cold shower bath, and frictions to the surface, during the intervals between the attacks.

Article V.

PNEUMONIA, OR INFLAMMATION OF THE LUNGS.

SYN.—*Peripneumonia*.—*Pneumonitis*.—*Pulmonitis*.

In this disease the inflammation is seated principally in the parenchyma of the lungs. There are three stages.

The *first* stage, is that of congestion; the lung is reddened;

there is slight effusion, the lung floats in water, and crepitates on pressure,

In the *second* stage, or that of *hepatization*, the congestion and diffusion is greater, extending to the vesicles and minutest bronchial tubes; the lung is consolidated, sinks in water, and emits a bloody serum on pressure.

In the *third* stage, or that of *suppuration*, the lung is solid and of a grayish color; hence it is sometimes called the *grey hepatization*; the effused matter is changed into pus. When the suppuration is circumscribed it constitutes *pulmonary abscess*.

Pneumonia may attack but one lung or both at the same time. It may be limited to a portion of one lung (*lobular pneumonia*).

Symptoms.—The disease is usually ushered in with a chill, followed by fever; pains in the side, breast or back, of a *dull* character, unless complicated with pleurisy; respiration is accelerated, cough dry and attended with bloody expectoration from the first. The *sputa* is viscid and tough, not very copious, and of a *rusty color*, from a mixture with blood. When the disease is complicated with bronchitis, the sputa has a *streaked* appearance.

Physical signs.—In the first stage there is slight dulness on percussion, and diminution of the respiratory murmur, but very soon the characteristic *crepitant rhonchus* is perceived, especially if there is a rusty sputum. It is caused by separation of the adherent walls of the vesicles in inspiration, and indicates the engorgement of the lung. In the *second* stage, the cells are obliterated; and dulness on percussion, *bronchial respiration*, and a loud resonance of voice, (*bronchophony*) are produced. A favorable sign in this stage is a return of the *small crepitation*. In the third stage a peculiar mucocrepitating rhonchus is heard; and is announced by the recurrence of the chill.

When an abscess forms, the gurgling or cavernous rhonchus is heard; after the pus has been discharged by expectoration, pectoriloquy and the cavernous respiration will be added to

this sign. *Gangrene* may be detected by the fetid expectoration and the odor in respiration and cough.

In typhoid pneumonia, there is less pain ; an expectoration of pure blood, or of a very dark matter ; general feebleness, dry tongue, sordes, and no crepitantrhonchus. *Hepatitis* is an occasional complication, and tubercles are sometimes developed in those who are predisposed. When associated with *miasmata* it assumes a periodic character.

Treatment.---This should be accommodated to the various stages, modifications, and complications of the disease and the character of the constitution invaded.

Bleeding---I once honestly supposed was indispensable to the safety and recovery of a patient with a good constitution, who was suffering from a severe attack of inflammation of the lungs. But personal experience in treating hundreds of cases without venesection, during ten years past, has convinced me that the disease can be better managed in every case without bloodletting. I came to this conclusion by testing numerous cases, which in all respects were similar.

Emetics, in the *first* and sometimes in the *second* stage of the disorder, are among the most efficient remedies to equalize the circulation, unload the air passages, and promote the secretions generally. A repetition of these may become necessary. Sanguinaria, lobelia, ipecac and eupatorium, are the best of this class, and they should be so administered as to act copiously. Emetics are of primary importance in *pneumonia biliosa*, or where there exists much derangement of the liver. They are, however, useful in all cases.

Cathartics of a *drastic* kind are always injurious in this affection ; *mild laxatives* are beneficial. If used too freely, expectoration is retarded, or suppressed. Great care is requisite, to restrain over action of the bowels in bilious complications.

Expectorants are very useful in this affection, after the general febrile excitement is moderated. The mildest and least stimulating articles of this class, should at first be used. Such as asclepias, rad. senega, eupatorium, bloodroot, lobelia,

&c. An infusion of one drachm of bloodroot and half an ounce of boneset in a pint of water, one teaspoonful every hour or two, is excellent. *Sanguinarin*, one or two grains, repeated every two hours, diminishes the velocity of the pulse in from eight to twelve hours, after which it only requires a small dose two or three times a day, to maintain its influence. It may be advantageously used in connection with ipecac or lobelia.

Cupping, followed by quick blisters, is often very beneficial in severe cases ; but in the milder forms, unnecessary. Common tumblers are best to apply to the sides, and cupping glasses over the spine.

The *cold water pack*, applied to the chest, and to the whole body, if the febrile reaction is general, and very great. I have often known this to supercede the necessity of cups and blisters. If skillfully employed, it is very reliable.

Sinapisms to the feet, chest and spine, are often of essential service. The extremities should be kept warm, and the head and chest slightly elevated.

Opium, in small doses, may be usefully employed when the expectoration is free ; otherwise it is decidedly injurious.

Stimulants and *tonics* must be used where gangrene is threatened ; as carbonate of ammonia, quinia, wine, brandy, creasote, chloride of lime, &c.

The *miasmatic* form must be treated with antiperiodics during the intermissions.

Typhoid pneumonia requires an early use of stimulants and tonics, and all measures which tend to reduce the patient must be avoided.

Chronic pneumonia may be treated with expectorants, revulsives, aperients, mild anodynes ; and tonics and stimulants in the latter stages.

Article VI.

PLEURITIS, OR INFLAMMATION OF THE PLEURA.

SYN.—*Pleurisy.*

Symptoms.—Fever, pungent pain in the side, much increased by inspiration or motion; dry cough; pulse full and hard; difficulty of lying on the affected side; respiration chiefly performed by the abdominal muscles. There is intense heat within the chest, and sometimes extreme tenderness of the integuments. The pain, at first wandering, soon becomes fixed and continued; after continuing forty-eight or sixty hours it generally diminishes, indicating effusion. In severe cases the pain continues long after effusion takes place.

Anatomical changes.—The first effect of inflammation of the pleura is a diminished secretion. Very soon *effusion* takes place, which may be serous, or fibrinous, without serum, in its character; this latter is the *dry pleurisy* of authors, and causes adhesions of the opposite pleural surfaces.

In chronic pleurisy the effused matter consists chiefly of pus. The effusion is greater, and compression of the lung proportionably decided. *Empyema* is the name now given to collections of pus in the cavity of the thorax. The pus sometimes makes its way into the bronchial tubes, producing *pneumo-thorax*, or it may take an external direction.

Physical signs.—There is dulness on percussion over the seat of the effusion, and no crepitation. The respiration becomes *bronchial* as the effusion increases, until the bronchi are pressed, when it becomes faint. Another pathognomonic sign of pleuritic effusion is that peculiar modification of the voice called *ægophony*; it is sharp and tremulous, resembling the bleating of a lamb.

When the effusion is large the viscera are displaced in a remarkable manner. Thus the pulsations of the heart may be observed under or on the right of the sternum. Hepatization of the lung produces no such displacement.

The absorption of the fluid is indicated by a gradual return of the respiratory murmur. The disease may be complicated with pneumonia, bronchitis, pericarditis, pneumothorax, or peritonitis. The difference in the physical signs will distinguish the disease.

Treatment.—If you are called in the first stage, or within twelve hours after the attack, give a full dose of opium; it will be sure to arrest the disease. It acts as a powerful sedative, antispasmodic, febrifuge and diaphoretic. Hence it fulfills all the indications. Later in the case, it is contraindicated. In the first stage of many other forms of acute inflammation of serous membranes, this drug acts promptly in repelling disease.

Emollient poultices, large, and applied cold to the affected side, are frequently of great service. They should be renewed every four hours, and made very moist.

Emetics are proper, and often subdue the affection by continued and thorough action, equalizing the circulation, and restoring the secretions. They must be used where there exists much derangement of the stomach.

Cathartics may be given so as to act freely on the bowels, and also to produce derivative effects.

The cold pack, is required, and should be frequently renewed if the fever is high, and if there is a high state of general reaction.

In other respects acute pleurisy may be treated in a similar manner to that of inflammation of the substance of the lungs.

Chronic pleurisy does not create much constitutional distress, but the patient emaciates rapidly. One side of the chest is dull and enlarged; the heart is displaced, and respiration weak.

The patient must be confined to bed, the bowels freely opened, and the diet consist of farinaceous substances. *Cups* should be applied to the affected side, followed by an *irritating plaster*. These measures are to be continued, and a copious discharge of purulent matter kept up for several weeks.

Asclepias tuberosa, in the form of warm infusion, should be taken freely. It is a medicine of singular virtue in this disease. *Asclepine*, in doses of one to three grains, three or four times a day, may be substituted for *asclepias*.

An *aperient*, *alterative*, and *diuretic* pill, composed of *podophyllin*, grs. 10; *digitalis*, grs. 15; squills, one drachm; ext. *sambucus* and *taraxacum*, aa, q. s., to form mass. Divide into 10 pills, and give one three times a day.

Iodide of Potassa, in five grain doses, should be given three times a day, in mucilage, in conjunction with the above remedies. These measures will promote the action of the kidneys, stimulate the absorbents to take up the effused fluid, and the patient seldom fails to improve.

Bathing with alkaline or saline water, followed with frictions, should be practiced two or three times a day, to excite the skin to a healthy and vigorous action.

The diet should be liberal, unirritating and nutritious, and calculated to strengthen and invigorate the constitution.

Paracentesis must be performed if the effusion into the pleura is so extensive as to endanger life by obstructing the respiration, or if the health and strength are failing under appropriate treatment.

Article VII.

EMPHYSEMA OF THE LUNGS.

This is the name applied to that affection of the lungs where the tissue is morbidly distended with air. There are two varieties of the disease; one in which the dilatation is confined to the air cells; the other in which the air escapes into the interlobular cellular tissue, or upon the surface of the lung beneath the pleura.

Symptoms.—Habitual dyspnœa, complexion of a dusky hue; countenance anxious and melancholy; nostrils dilated and thickened; lower lip enlarged, and its mucous membrane

everted and livid. The movements of the thorax are irregular and unequal; inspiration is short, high and rapid; while expiration is slow, incomplete and graduated. The shoulders are elevated and brought forward, and the patient stoops habitually. During the fits, the respiration becomes convulsive; there is constant cough, usually dry, but sometimes attended with expectoration of a viscid liquid. This disease was long confounded under the name of "asthma."

Physical signs.—The chest yields a morbidly clear sound on percussion; it is not tympanitic, however, as in pneumothorax. It is not equal at all points, as the disease seldom extends to the whole lung. There is little or no vesicular breathing, which indicates that the effused air is not in motion. *Dry* crepitation is occasionally heard, produced from the entrance of air into the dilated vesicles. The extra-vesicular variety is apt to come on suddenly from violent inspiratory efforts.

Causes.—Bronchitis, spasmodic asthma, organic disease of the heart, tubercles of the lungs, excessive exertions, playing on wind instruments, or any other cause which produces violent and continued inspiratory effort, may occasion the disease.

Treatment.—There are two circumstances under which this disease may exhibit itself; first, causes which produce it may have existed from the earliest period of life, or from infancy; second, it may result from obstructions, dependent on bronchitis, &c., as just mentioned.

In the *first* form, it is evident that little more can be accomplished than to palliate the symptoms. The patient must avoid all active exertion, and maintain a uniform moderation in all his habits.

In the *second* case the mode of treatment is very plain. During the exacerbation of dyspnoea, the patient must be kept at rest, and all causes removed, as far as possible. If evidence of acute bronchitis, or active pulmonary congestion exist, *scarify* and *cup* between the shoulders; and give small doses of *sanguinarin* and *lobelin*, at short intervals, during the continuance of acute inflammatory symptoms. After

these subside, or in a case where they did not originally exist, *antispasmodics* and *anodynes* may be administered; irritating plaster should be applied between the shoulders, and *sina-pisms* to the feet and chest.

Expectoration, which is important, may be promoted, and the bronchial spasm relieved, by a mixture of equal parts of syrup of squill and seneka, with twice the quantity of tincture of lobelia. A teaspoonful of this may be given every hour, or as often as the case requires, until relieved.

To prevent the paroxysms of dyspnoea is the most important object in view. All muscular exertion, causes of indigestion, flatulence and constipation, should be carefully avoided, because if the action of the diaphragm is impeded, an attack of dyspnoea will be sure to follow. The patient should be warmly clad, especially about the feet and limbs; should live in a sheltered and genial situation, and observe perfect regularity in all his habits.

Article VIII.

PHTHISIS PULMONALIS.

SYM.—*Pulmonary Consumption.—Tuberculous Consumption.*

Phthisis Pulmonalis, or pulmonary consumption, consists in the development in the lungs of a substance called tubercle.

These tubercles may present themselves in three forms :—1st, the *common cheesy tubercle*; 2d, *miliary tubercles*; 3d, *tubercular infiltration*. (See *Tuberculosis*, page 49.)

Tubercle, when deposited, may lie dormant for a long time, without exciting any particular symptoms. But generally it acts as a foreign body, and is expelled by exciting inflammation and suppuration in the neighboring sound parts.

Softening is the first visible change which takes place; it commences in the centre, and gradually increases till an abscess forms, called a *vomica*. This enlarges, bursts into a neighboring bronchial tube and is discharged by expectora-

tion; the disease may be arrested at this point; more frequently, however fresh tubercle is deposited, new abscesses form, unite, and discharge their contents, till the patient dies from exhaustion.

The upper lobes are the most frequent seat of tubercle, and the left lung is usually attacked first.

Symptoms of Phthisis.—It usually commences with a dry, hacking cough, which afterwards becomes moist. The sputa, at first clear, becomes opaque. The pulse is accelerated, fugitive pains are felt about the chest, or in the scapular region; *emaciation* soon comes on, and is a symptom which especially demands attention. This condition may continue for months without any particular change, and but little apprehension is entertained.

The first stage of the disease is generally denoted by the occurrence of a hemorrhage from the lungs; or a pleuritic attack, which may be very obstinate, and create much alarm. A paroxysmal fever now sets in, accompanied with night sweats. These symptoms mark the *softening* of the tubercles.

In the *second stage*, discharge of the softened tubercle takes place; the matter is purulent in character, and exhibits lumps of a cheesy matter, called *nummular*. The fever now becomes decidedly *hectic*; chills occur irregularly; profuse sweats at night weaken the patient; hæmoptysis frequently occurs, owing to erosion of the small vessels by ulceration; more or less pain in the chest, sometimes very acute. The symptoms are temporarily relieved as the source of irritation is thrown off; but as the process of softening goes on, they soon reappear. The digestive system becomes affected; appetite impaired, thirst, abdominal pains, and a persistent and debilitating diarrhoea occurs, which greatly annoys and weakens the patient.

In the *third stage*, the emaciation and debility very much increase, the patient cannot leave his bed, œdema of the feet and legs appear, apthæ occur in the mouth; sense of excoriation in the throat; bed-sores are apt to be formed; the

dyspnœa is at times excessive. If the digestive organs are not implicated the patient continues cheerful and hopeful to the very end. Death may occur in various ways; from pulmonary hemorrhage; from sudden congestion of the lungs; from pneumo-thorax; from ulceration of the bowels, bringing on peritonitis; or from debility.

Hemorrhage is not a *certain* sign of phthisis, as many suppose. It often exists as an independent affection. Coexisting with phthisis we frequently find bronchitis, pneumonia, pleurisy, peritonitis, &c.

Physical signs.—In the early stage of the disease, there is *dullness* on percussion over the upper part of the diseased lung, together with great feebleness of vesicular respiration. This is owing to the early deposit of tuberculous matter at the summit of the lung. *Bronchial* respiration and a prolonged expiration will be observed if a bronchial tube is inclosed in the solidified portion. Depression under the clavicle of the affected side is often manifest on inspection, arising from shrinking of the lung from consolidation, or from intercurrent pleurisy. *Bronchophony* is frequently heard.

A *gurgling* sound is heard, when softening takes place, caused by the passage of air into cavities containing liquid matter. *Cavernous respiration*, succeeds the gurgling sound, after the vomica is empty.

Another sign that indicates the existence of a vomica is a peculiar resonance of the voice called *pectoriloquy*. It is heard over a cavity such as produces cavernous respiration. If the vomica be empty, or the intervening structure quite dense, the sound is transmitted in a perfect and unmodified manner, and is called *perfect pectoriloquy*. If heard with the stethoscope, the sound of the voice seems to come through the tube, and enters the observer's ear louder than that which strikes the other ear, from the mouth; but the utterance is never distinct.

By *imperfect pectoriloquy* is meant that form in which the voice does not seem to enter the stethoscope, but only to resound at the end.

The *amphoric resonance* is heard where a communication exists, from ulceration, between a vomica and the pleural cavity. It is a sound of a *metallic* character, resembling that produced by speaking over an empty barrel. Other signs of this perforation are, great clearness on percussion; complete absence of respiratory murmur; and occasionally a *tinkling* sound, produced by the dropping of liquid from the upper to the lower part of the cavity.

These four sounds, all indicating the existence of a large cavity containing liquid and air, and communicating with the trachea, are generally caused by pneumo-thorax. They may be caused, though rarely, by the existence of a large vomica. Instead of great clearness, in this case, there will only be heard extreme dullness on percussion, and in the upper part of the chest.

A *spirometer* is used, as another mode of physical exploration, by which means the *vital capacity* of the chest is ascertained.

Of the sputum.—There is no uniform relation between the appearances of the expectorated matter and the state of the lung, in pulmonary consumption. It may be mucous while large cavities exist in the lung, or purulent from bronchial irritation. In the earliest stage of the disease, the cough is either quite dry, or attended by a mere watery or slightly viscid, frothy, and colorless fluid; this, on the approach of the second stage, gradually changes into an opaque, greenish, thicker fluid, intermixed with small yellow streaks. At this period, also, the matter is intermixed with small dead white specks, resembling boiled rice. After the complete evacuation of the tubercles the expectoration consists of yellowish-white globular masses, with a wooly surface, like little balls of cotton or wool, which usually sink in water; or it may be of the common character of pus of an abscess, constituting a uniform, smooth, coherent or diffuent mass, of a greenish or greyish hue, with an occasional bloody tinge, and sometimes more or less fetid.

Course.—The course of phthisis is ordinarily slow ; occupying from one to two years, or even longer ; occasionally, however, it is very rapid, terminating in six or eight weeks. The latter constitutes *acute phthisis*, or *galloping consumption* ; and usually depends on excessive deposition of miliary tubercles throughout the lungs.

Prognosis.—In a vast majority of cases unfavorable ; a cure is very rarely effected after the disease is fully established ; proofs, however, of its occasional curability are afforded in the cicatrices found in the lungs of persons who have died of other diseases. The chances of recovery depend upon the amount of tubercle deposited, and the tendency which exists to deposit more.

Treatment.—Medication, alone, cannot cause the removal of tuberculous deposit, but the system can be sustained until nature accomplishes this ; and the tendency to further deposition, may often be obviated.

A correct hygiene is the main reliance in the treatment of pulmonary consumption. The process of nutrition should be invigorated up to the natural standard, but not beyond this. The food must be nutritious, and easy of digestion ; active stimulation should be avoided, but a moderate use of wine, or malt liquors, before meals, not sufficient to excite the brain, are usually beneficial.

Exercise is specially important. This should be enjoyed in the open air, on foot, or what is much better, on horseback. It should be steady and habitual ; the patient must not stay within doors, even in cloudy weather, provided he is warmly clothed. The *clothing* is of great importance, and quite too much neglected. Animal fabric, such as silks, cashmere, woolen and furs, should be worn next the skin. Cotton and linen goods are ready conductors of electricity, which is probably the great medium, if not supporter, of animal heat and vitality. Hence silk, woolen, &c., habitually worn next the body, secure to the system the electric fluid generated, which preserves the patient from sudden cold, and maintains a uniform action of the bodily functions.

Locality should not be neglected. A residence in a warm, dry climate, especially during the cold and changeable seasons of the year, is always very desirable. It is deemed beneficial to inhale the atmosphere from a pine forest.

Bathing and frictions.—The skin, that vast emunctory of stale elements, must have strict attention paid to its condition. It is generally dry and harsh; but sometimes clammy and soft, while at others, scaly and anomalous eruptions appear about the head, ears, nose, and angles of the limbs.

The shower bath every morning, when the patient is not too weak to insure a ready reaction, followed by brisk friction with a towel, will be found an invaluable restorative in pulmonary consumption. The *douche* should not be long continued at one time, and should not be made with water lower than 80°F. It is contra-indicated in the advanced stages of the disease.

The sponge bath must be used in patients of great nervous irritability, and those who are so much debilitated that they cannot bear the shock of the shower bath. It may be applied to a part, or the whole surface at a time, followed by the hand or a towel, and beneath the bed-clothes if they cannot bear the exposure to the air without a chill.

Medicinal agents.—These consist of tonics, if the digestion is enfeebled; as cold infusion of wild-cherry bark; iron and iodine, if there is anemia; as also cod-liver oil, which last may be given six or eight weeks, in from one to four drachm doses three times a day.

Ext. taraxacum, one ounce; sanguinaria, half a drachm; pulv. liquorice root, q. s. Divide into forty pills, of which one may be taken every eight hours. This preparation promotes the secretions, modifies the action of the heart, aids absorption and expectoration. If the liver and bowels be very torpid, twenty grains of leptandrin and ten of podophyllin may be added.

Common salt, used externally and internally, is one of the best remedies in tuberculous disease. It should be freely used in the food and the baths. It is particularly useful in allevia-

ting the enlarged and indurated condition of the spleen, so common in this disease.

Inhalation of vapor.—This process has two advantages; *first* it habituates the patient to full inspiration and expansion of the chest; *second*, it brings the remedies in immediate contact with the morbid tissues, and renders them more effective in aiding the vital processes. Vapor of tar-water and iodine are very soothing when the bronchia and larynx are irritated.

The effects of phthisis require attention. The cough must be alleviated with lobelia, tolu, eupatorium, sanguinaria, morphia, hyoscyamus, &c., in the usual forms of cough preparations.

Hæmoptysis may be let alone if slight; if violent, it must be relieved by the ordinary means for arresting bleeding of this kind.

Night sweats should be checked with cold tea of sage, white daisy, wild cherry, and mineral acids.

The hectic fever may often be benefitted by moderate doses of hydrastin, quinine, &c.

The diarrhæa, if exhausting, must be checked by astringents, neutralizing mixture and sudorific tincture, with anodyne and starch enema.

Prophylactic Treatment.—This is very important. A correct plan of hygienic treatment must be early adopted, if an individual inherits a tuberculous diathesis. Out-door exercise and occupation; avoid all sedentary habits; promote a proper expansion of the chest; use a nutritious and wholesome diet, and cultivate agreeable and cheerful associations.

SECTION III.

DISEASES OF THE CIRCULATORY SYSTEM.

Article I.

AUSCULTATION OF THE HEART, &C.

On applying the ear to the region of the heart in a healthy person, a sound is heard at each pulsation, followed by an interval of silence. This sound is double, consisting of a dull slow sound, immediately followed by a short quick one. The first sound is produced by the contraction (systole) of the ventricles, and is synchronous with the pulse of arteries near the heart. The second, or short one, accompanies the dilatation (diastole) of the ventricles. This second sound is said to be produced by the shock caused by the tightening of the semilunar valves at the ventricular diastole. Laennec rates the relative duration of these sounds to be as follows—The first sound, two-fourths; the second sound, one-fourth, or a little more; the interval of silence, one-fourth, or a little less. These sounds are naturally most distinct in the space between the cartilages of the fourth and seventh ribs of the left side, and on the lower part of the sternum; the former part corresponding with the left, and the latter with the right side of the heart. Simultaneously with the first, or systolic sound, an impulse or shock is communicated to the stethoscope. It is most perceptible at and between the cartilages of the fifth and sixth ribs, where it may be felt by the hand; but the stethoscope commonly renders it sensible in lean persons over the whole præcordia. Considerable variety in the force of the impulse may occur from various extraneous causes acting on a healthy heart. Thus, the pressure of tumours behind it, flatulent distension of the stomach, great enlargement of the liver and spleen, contraction of the chest from pleurisy, deformity of the spine, and similar causes, which have the effect of pushing the heart into closer contact with the anterior

walls of the chest, will make its impulse against them stronger. Again, extensive effusions of air or liquid in the left pleura may displace the heart, so that its impulse can only be felt under or even to the right of the sternum. The action of the heart is naturally accelerated by exercise, stimulating drinks, heat, &c.; and this excited action is attended with an increased impulse and with louder sounds.

Exact position of the heart.—A line drawn from the inferior margins of the third ribs, across the sternum, passes over the pulmonic valves a little to the left of the mesial line, and those of the aorta are behind them, but almost half an inch lower down. A vertical line coinciding with the left margin of the sternum has about one-third of the heart, consisting of the upper portion of the right ventricle on the right, and two thirds, composed of the lower portion of the right ventricle, and the whole of the left, on the left. The apex beats between the cartilages of the fifth and sixth left ribs, at a point about two inches below the nipple, and an inch on its sternal side.

Take the fifth costal cartilage on the left side, and let a point midway between its junction with the sternum and its junction with the rib be the centre of a circle, two inches in diameter. This circle will, as nearly as possible, define the space of the præcordial region, which is naturally less resonant than the rest.

Relation of the sounds to the state of the heart.—A clearer sound proceeds from a thin heart, and a duller sound from a thick heart; a sound of greater extent from a large heart, and a sound of less extent from a small heart. A more forcible impulse is given by a thick heart, and a feeble impulse by a thin one; the impulse is conveyed to a longer distance from a large heart, and to a shorter distance from a small heart.

Morbid sounds of the heart.—Unnatural sounds may be called *murmurs*; and they are of two kinds; the *exocardial*, produced *external* to the heart, that is to say, *in the pericardium*; and the *endocardial* produced in the heart itself.

The *endocardial* murmurs have a *blowing* character ; the *exocardial* give the idea of friction.

The endocardial murmur is not only different in kind from the natural sounds of the heart, but it takes their place, and is heard in their stead. It comes exactly where the first sound, or where the second, or where both sounds should be. It keeps strict time with the systole or with the diastole of the heart, or with both.

The exocardial murmur, too, is different in kind from the natural sounds of the heart. But it does not take the place of them ; it is not heard in their stead. In proportion as it is louder, it obscures or overpowers the natural sounds. But the natural sounds are still apt to reach the ear through the exocardial murmur ; and when they do not reach the ear, it is because they are imperceptible under the circumstances, not because they cease to exist.

Endocardial murmurs (i. e., murmurs *within* the heart) are caused by peculiar *vibrations of the columns of blood* which pass through the heart ; and these vibrations may depend,—1st, upon an unnaturally thin *quality*, and deficient quantity *of the blood*, as in the murmurs heard after hemorrhage ; 2dly, *on disease of the valvular orifices* of the heart, offering obstacles to the passage of the blood.

A murmur caused by the passage of the blood through a diseased valvular orifice may be *direct* or *regurgitant* ; that is, may be produced during the flow of the blood along its natural channel, if contracted ; or during its regurgitation, which will happen if the diseased valve is unable to shut properly.

In order to ascertain what valve is diseased, notice must be taken of the *time* at which the murmur is heard ;—of the *part* of the præcordial space *where it is heard most loudly* ; and of the *direction in which it is conveyed the farthest*.

Valvular disease of the right side of the heart is very rare indeed ; and the diagnosis of it from disease on the left side

is a matter of some uncertainty. The following observations, therefore, chiefly apply to the aortic and mitral valves.

When a single endocardial murmur is heard during the *systole* of the heart, its seat is most probably the aortic valve, which is thickened so as to impede the blood in its exit from the heart and to throw it into vibration.

When a single murmur is heard, coincident with the heart's *diastole*, this also may be produced by a diseased aortic valve, if so diseased as to be incapable of closing, and permit the blood to *regurgitate* into the ventricle.

When there is a double murmur, both *systolic* and *diastolic*; these also may arise from disease of the aortic orifice alone; the former being a murmur caused by the flow of blood from the heart; the latter by its regurgitation.

Again, when there is a *single systolic murmur*, it may be caused by disease of the *mitral valve*, permitting the blood to regurgitate into the left auricle from the ventricle, when the latter contracts.

The spot where all endocardial murmurs are heard most distinctly, is immediately over the valve which originates them. And the space under which the cardiac valves lie, may be said to be comprised *between the lower margin of the 3d left costal cartilage, and the lower margin of the 4th*; extending inwards to the middle of the sternum. Here it is that almost all murmurs are heard most clearly.

The method of distinguishing them from each other is based on the fact that the murmur will be conveyed along the direction of the column of fluid whose vibration causes it.

Thus if a murmur be seated at the aortic valve, it will be heard most clearly *over the left half of the sternum, between the 3d and 4th costal cartilages*. But the sound will also be conveyed with tolerable clearness *in the course of the aorta and its branches*; that is to say, upwards and between the second and third ribs of the *right side*—perhaps it will also be heard in the carotids.

If the disease (which is very rare) were seated in the *pulmonic valves*, the murmur would follow the course of the *pulmonary artery*, upwards between the 2d and 3d ribs of the left side.

If it were seated in the *mitral valve*, the murmur would be lost if the stethoscope were moved upwards ; but would still be heard distinctly if it were moved *downwards towards the apex of the heart*.

If the murmur is heard plainly in *both directions*, then *both aortic and mitral valves* are probably diseased.

There are some few circumstances which must be taken into account in estimating the value of endocardial murmurs as signs of valvular disease.

For first, they are sometimes absent altogether when the patient is in repose ; although they may be excited by causing the patient to move about, so that the heart may beat more forcibly.

Secondly, the loudness of the sound is by no means a measure of the extent of the disease ; for in long-standing cases, where a diseased orifice has become very contracted, the sound often becomes very feeble indeed.

Thirdly, very violent action of the heart alone, without valvular disease, may occasion a murmur ; this often happens to children ; seldom to adults.

Fourthly, if the heart is embarrassed by deformity of the chest, or if it is too much pressed upon by the stethoscope, murmurs may be created.

Fifthly, in cases of anemia, after hemorrhages, or when the blood has become pale and watery through ill health, there will be a loud systolic murmur, conveyed along all the arteries ; and also often accompanied by a continuous humming noise heard in the veins, especially the internal jugular.—This state is to be remedied by nourishing food and tonics.

Lastly, the sounds of respiration may imitate cardiac murmurs so closely, that it may be necessary to make the patient hold his breath, to distinguish their real source.

*Article II.*INFLAMMATION OF THE HEART; ENDOCARDITIS AND
PERICARDITIS.

These maladies are generally found to be concomitants of *rheumatism*; though they often occur from other causes.

Symptoms.—The symptoms of endocarditis are 1st, *pain* in the heart; 2d, *disordered action* of the heart; 3d, some degree of *dyspnœa*; and 4th, *abnormal sounds*; beginning with a *roughness*, and afterwards a murmur, termed the *bellows murmur*; arising from thickening of, or deposit on some of the valves. When one or more of these symptoms occur during an attack of acute rheumatism, we may justly infer the existence of endocarditis. The pain is sometimes very slight, at others is an extreme anguish, and may be followed by orthopnœa, restlessness, delirium and death. The murmur may be heard at the beginning, or not until towards the middle or end of the disease.

The symptoms of pericarditis are, 1st, pain in the region of the heart, augmented by pressure and by deep inspiration; 2d, irregular or violent action of the heart; 3d, difficult breathing; and lastly, the physical signs—an *æcocardial murmur* caused by the rubbing of the roughened and inflamed serous surfaces of the heart and pericardium against each other; dullness on percussion over the præcordial region, and sometimes a visible undulation between the cartilages of the 2d, 3d and 4th left ribs. These last two signs arise from the presence of effused fluid in the pericardium.

Nervous and cerebral irritation frequently attends this disease, and may mislead the practitioner, inducing him to look to the head instead of the præcordia.

In a majority of cases of acute rheumatism, inflammation of the heart is an attendant; hence in that disease, the region of this organ should be frequently examined by the stethoscope.

Morbid appearances.—In pericarditis, the membrane is intensely red; its cavity containing serum, with flakes of lymph. The opposing surfaces often adhere; surface of the heart covered with flocculent lymph. In endocarditis the affected portion of the valves is generally found thickened, pink, and fringed with deposits of lymph.

Treatment.—Inflammation of the heart must be treated in the same manner as acute rheumatism, only modified to meet the emergency. Cupping between the shoulders, sinapisms to the chest, spine and feet, volatile and stimulating liniments, hot pediluvia, &c., externally.

A moderate emetic must be given, followed by a thorough physic, if the stomach and bowels contain crude ingesta.—Bloodroot or digitalis must be administered to moderate the action of the heart. Full doses of opium at bed time, are required to secure sleep. Purgatives should be repeated, to clear the bowels, and colchicum will be of essential service. *Blisters* will hasten the absorption of effusion, or the deposit of lymph, after the acute symptoms have subsided. Podo-phyllin, sanguinarin, digitalis, squill, or cream tartar must be given for the same purpose.

Article III.

CHRONIC VALVULAR DISEASE.

The valves of the heart may become contracted or distorted, or ulcerated; *vegetations*, or roughened projections may occur; there may be a deposition of osseous matter, and in gouty subjects of urate of soda. Sometimes the valves become atrophied. The valves of the left side are most often diseased. It is frequently the result of chronic endocarditis.

This disease, if severe, is apt to produce hypertrophy and dilatation, dropsy, local inflammations, and ultimate death. These results are owing, first, to the impediment to the forward movement of the blood in consequence of the contract-

ed valvular opening, and secondly to the regurgitation of the blood, causing accumulation behind.

Symptoms.—Dyspnœa, and palpitation, greatly increased by muscular effort or emotion. The pulse is often intermittent, jerking; at other times very frequent, small and irregular.

The *physical signs* are termed *murmurs*. It is important to distinguish between these and the murmurs of functional disease. In *mitral contraction* the murmur accompanies the diastole, and is heard over the ventricles—between the fourth and fifth ribs—never *above* this point, which distinguishes it from aortic valvular deficiency. The second sound of the heart being distinctly heard shows that the aortic valves are sound.

In *mitral deficiency*, the murmur attends the systole. It is loud and prolonged in a low key, like whispering the word “who;” it is the most common of the abnormal sounds, and is heard over the seat of greatest dullness.

In *contraction of the aortic valves*, the murmur accompanies the systole; is heard above the third rib, and sounds like whispering the letter “z.”

In *aortic regurgitation* the murmur attends the diastole; it is rather weak, and heard at the apex of the heart.

In valvular disease of the *right* side the sounds are much the same as those of the left.

Treatment.—When it is the result of inflammation, continue the moderate use of podophyllin, leptandrin and blood-root. If it can be traced to a gouty or rheumatic habit, a protracted use of alkalies with colchicum, will be serviceable. Counter irritation by means of cups, followed with an irritating plaster, are often useful. *The diet* should be light and unirritating. Gentle exercise is proper, but all active exertion must be prohibited. Keep the extremities warm, and use suitable measures to maintain an equal and uniform circulation of the blood, and an active state of the functions of the skin. This disease is curable, if treated early.

Article IV.

HYPERTROPHY AND DILATATION.

Hypertrophy is a term applied to an augmentation of the muscular walls of the heart; *dilatation*, to an enlargement of its cavities. Both conditions usually exist at the same time.

General Symptoms.—Dyspnœa on the slightest exertion; palpitation, sometimes so violent as to shake the whole body; præcordial uneasiness. The *secondary* signs are, violent headache, vertigo, buzzing in the ears, flashes of light, pulmonary congestion, pneumonia, apoplexy of the lungs, hepatic disorder, dyspepsia, and finally general and local dropsy. Towards the close the patient is forced to assume a sitting posture, with the body bent forward. Death sometimes occurs very suddenly, in syncope.

In *hypertrophy with dilatation*, there is a very strong and full pulse, flushed face, prominent eyes, headache, and tendency to apoplexy.

Hypertrophy of the right ventricle is generally attended with tricuspid regurgitation, causing a pulsation in the jugular veins. Percussion is duller, and there is greater prominence in the præcordial region.

Dilatation without hypertrophy, is a kind of muscular atrophy, occurring in flabby cachectic patients, in whom the heart gives way and stretches in efforts to carry on the circulation. The *symptoms* are pale face, purplish lips, feeble pulse, œdema of the feet, faintness, passive hemorrhage and dyspnœa from the slightest excitement. The *sounds* are clearer than natural, accompanied by dullness on percussion and a feeble pulsation.

Causes.—Disease of the valves is the most frequent cause, rheumatic irritation, violent exercise, playing on wind instruments, immoderate eating and drinking, emphysema of the

lungs, asthma ; anemia predisposes to it by occasioning relaxation.

Treatment.—In the early stages this disease is curable, if the valves are not implicated. The chief indication is to remove the exciting cause, especially valvular disease. Regulate the patient's habits of life and occupation. The diet should be moderate and the exercise passive. Cupping and issue plaster, bloodroot, digitalis ; tincture of aconite and colchicum where there is rheumatism, with proper revulsions to the surface, are the remedies in *hypertrophy*.

If *dilatation* exist the object is to produce good blood.—Tonics, as cod-liver oil, iron, animal food, with small doses of saline cathartics, will be indicated. Bloodroot and digitalis are specially required. Cold infusion of wild cherry bark, or small doses of peruvian, at proper intervals, is an excellent tonic. If the patient be a nervous female, ext. of valerian lupulin, scutellarin, belladonna, &c., are necessary.

Atrophy occasionally occurs. *Softening* may take place without inflammation ; it may result in a rupture of the heart. *Indurations* of the heart of various kinds may occur, as of the *fibrous*, *cartilaginous* and *osseous* character. *Fatty degeneration* is a rare disease. *Tubercle*, *carcinoma*, and *polypi*, are also rarely observed. These diseases are all incurable, and nothing more can be accomplished by treatment, than to palliate the symptoms and regulate the habits of the patient.

Article V.

ANGINA PECTORIS.

Symptoms.—Sudden and violent pains about the sternum, extending to the arms, attended with great anxiety, difficulty of breathing, and a sense of suffocation ; pulse usually natural—sometimes irregular and intermittent ; countenance pale, and expressive of great anguish ; extremities cold. The attacks usually come on while the patient is walking. At first it lasts but a few minutes, and returns after long intervals ;

but by degrees the fits recur oftener, and become more protracted. Death almost always occurs suddenly.

Causes.—Ossification of the coronary arteries, and valves of the heart; accumulations of fat about the heart; dilatation of the ventricles; softened structure of the heart.

Predisposition.—It occurs more frequently in males than females; is exceedingly seldom in the young. Rheumatic and gouty persons most liable.

Treatment.—*Quiet* must be immediately enjoined. Warn the patient of his danger; employ the measures before mentioned to allay irritation of the organ diseased, being careful to neither weaken nor stimulate the patient. Promote a good action of the liver, kidneys and bowels, and secure a uniformly equal circulation.

Article VI.

FUNCTIONAL DISEASES OF THE HEART.

These are exhibited under two main forms,—*palpitation*, and *neuralgic pains*. The characteristic sign is the *absence of a constant murmur*; the general symptoms are much the same as those of organic diseases.

Causes.—Excessive use of tobacco, coffee and tea, dyspepsia, severe study, depressing emotions, sexual excesses, anemia, and any cause capable of producing general nervous derangement. They occur most frequently about the age of puberty; and in females more than in males.

Treatment.—This must be conducted on general principles. All known causes must be removed. Tònics, chalybeates, antispasmodics, and exercise, are generally proper. Avoid all extremes of intellectual and physical exertion, and improve the constitutional vigor and strength.

Article VII.

DISEASES OF THE BLOOD VESSELS.

ARTERITIS.---Inflammation of the arteries is a rare disease. There is pain and tenderness along the course of the vessel, attended with a thrill or throbbing. Circulation is often arrested by effusion of coagulable lymph within the vessel, inducing gangrene,---more particularly the case in old people. The *chronic* form, though more frequent than the acute, is seldom observed before death.

Treatment.---The practical point to be derived from our knowledge of this disease is, that in any case of *spontaneous gangrene*, we should not be too hasty in treating it as a case of debility, by local and general stimulants, till the condition of the arteries has been examined. Fomentations and sinapisms to the part affected, are proper.

PHLEBITIS.---This consists in an inflammation of the veins, and is of frequent occurrence. Symptoms are pain and tenderness along the course of the vessel, which becomes cord-like and knotted, being thus distinguished from arteritis. The adjacent parts become swollen, and red in streaks; the limb below the affected part is swollen, owing to obstruction of the circulation, and effusion of serum. Thus, the *milk leg* of women depends on inflammation of the uterine veins, extending thence to the iliacs and femorals. Pus often forms, and may entirely close the vein above; or be deposited and produce *abscess*; or pass into the heart, producing great prostration.

Treatment.---Rest, with the limb in an elevated position; fomentations, or cold lotions, as the patient may choose; purgatives; subsequently, friction with camphorated oil and bandages will be required for *sub-acute phlebitis*.

Acute Form.---The principal things to be done in this almost hopeless malady are to apply numerous leeches and fomentations to the part affected; to open the abscesses early;

to give mild cathartics, to allay restlessness and pain; and to support the strength by nutriment, such as beef-tea and arrow-root. Relief is also afforded by a flannel bandage. Stimulants or sedatives must be employed as each case indicates. In case of suppuration, a supporting plan must be adopted.

Article VIII.

DISEASES OF THE BLOOD.

SCORBUTUS.—SCURVY.—A peculiar depraved state of the blood, the nature of which is unknown. The symptoms are general debility, fatigue on the slightest exertion; face pale, gums are swollen, soft, and bleed easily; breath offensive, and petechiæ over the body; feet œdematous, and hemorrhage frequently occurs from the mucous surfaces. Appetite unaffected and intellect sound to the last. Death occurs from debility or hemorrhage.

Causes, &c.—It occurs most frequently on shipboard; its chief cause is deprivation of proper vegetable food. Excessive fatigue, exposure, &c., may produce it.

Treatment.—The chief reliance must be placed in the use of *fresh* vegetable food; and acids, especially lemon juice, or citric acid. Potatoes and cabbage are excellent antiscorbutics; and milk is a good article of diet. Cleanliness, fresh air; moderate exercise, without fatigue; bathing, followed by frictions; gentle tonics and stimulants, are the principal remedies. Medicines are of little value.

PURPURA.—This affection is characterized by livid or purplish spots, generally appearing first at the lower extremities. They sometimes appear in crops, usually small, but sometimes quite large; not elevated, nor accompanied with any sensations. It is simply an effusion of the coloring matter of the blood. It is occasionally periodical, and may be attended with neuralgic pains in the back, and other constitutional symptoms. In bad cases, the blood escapes from the gums, lungs, bowels, &c.

The *cause* is not known; it occurs usually in depraved constitutions, and in its general character resembles scurvy. It is not prevented or cured by fresh vegetable food, as is scurvy.

Treatment.—The indications are to improve the low state of the blood, by milk, or (what is better) cream diet, and tonics; fresh air, bathing and friction, &c. If hemorrhage occur, astringents and cold applications are proper. Torpidity of the liver and bowels must be obviated by gentle aperients, such as leptandrin, ex. dandelion, &c.

Article IX.

EPISTAXIS.—HEMORRHAGE FROM THE NOSE.

Symptoms.—In the sthenic form there is pain in the head, vertigo or somnolency, with increased pulsation in the temporal arteries. It often occurs as a *crisis* of some acute disease, especially inflammatory fevers, inflammation of the brain, lungs, &c. The passive forms occur in the last stages of low malignant diseases; and the discharge may be so excessive as greatly to endanger life.

Causes.—Idiopathic epistaxis occurs most frequently in children and young people. In mature life it is symptomatic of some visceral disease, or consequent upon the suppression of some habitual discharge. The *external* causes are injuries, irritants, &c.; the *internal* are whatever increases the flow of blood to the head, as mental excitement, sneezing, catarrh, &c.

Treatment.—In urgent cases immediate relief may be afforded by pressure with the thumb upon the facial artery over the upper jaw, at the right and a little below the nose. Place the feet in hot water, elevate the head and shoulders, make cold applications to the head, inject astringents into the nostrils, and give a brisk cathartic. If it becomes periodical, in the form of vicarious menstruation, it may be anticipated by cupping the nape of the neck.

In the *passive* or *atonic* state of the system, the health should be improved, constipation obviated, circulation equalized, and the skin excited to an active state of its functions. Astringent injections into the nostrils, and astringents and tonics internally, should not be omitted. In some rare cases, the anterior and posterior nostrils must be plugged up, where the bleeding will not stop,

Article X.

HÆMOPTYSIS.—HEMORRHAGE FROM THE RESPIRATORY ORGANS

This is a frequent variety of hemorrhage. It may proceed from the mucus membrane of the bronchi; from a vessel ulcerated in a tuberculous excavation; or from an aneurism of the aorta or some of its primary branches—the latter soon proving fatal.

Hæmoptysis may be *simple*, the blood being all spit up; or it may be attended with what has been improperly called *pulmonary apoplexy*—an infiltration of blood into the air cells, rendering a portion of the lung solid.

Symptoms.—Some degree of pain or oppression at the chest, with cough which brings up mouthfuls of blood, fluid or clotted. The quantity may vary from a teaspoonful to several pints, so that the patient may be suffocated by the abundance of the hemorrhage.

Auscultation will show the extent and place of the hemorrhage; when there is blood in the air tubes, there will be a corresponding crepitation; if the lung is solidified there will be absence of respiration in the hardened portion.

Causes.—Scrofulous and phthisical persons are most predisposed to this variety of hemorrhage. *Exciting causes* are atmospheric vicissitudes, violent exertions; suppression of habitual discharges; drying up of old ulcers; irritation of the respiratory passages; organic diseases of the heart, pregnancy, &c.

Treatment.—Perfect quiet must be enjoined, with the body in a recumbent position, and the head and shoulders slightly elevated, allowing a breeze of fresh air to pass over the chest. A half-drachm of salt, or spirits of turpentine may be given, and repeated every half hour, until the bleeding ceases. Coughing should be suppressed as much as possible. If the patient be restless, give one drachm of sudorific tincture. Hot pediluvia and sinapisms should be used. If the hemorrhage be rapid and dangerous, *ligate* the limbs, but not so tightly as to interrupt the arteries, and remove the ligatures gradually after the bleeding is arrested. If the habit be full, free hydrogogue cathartics will be necessary,—otherwise mild saline *aperients* are best. If the pulse be rapid, sanguinaria or digitalis must be used, and continued until it is sufficiently modified. If there is soreness at any point in the chest, cups or sinapisms are proper.

Oil of erigeron canadense, fifteen drops every half hour, until the bleeding is arrested, is the best remedy I ever used in this and all other kinds of hemorrhage.

Oil of fireweed in doses of five to fifteen drops every hour until the bleeding ceases, is reputed to be even better than the fleabane. Of its comparative merits I am not able to judge, not having used it.

After the bleeding is arrested the patient should be treated as circumstances require.

Article XI.

HÆMATEMSIS.—HEMORRHAGE FROM THE STOMACH.

Symptoms.—The premonitory symptoms which are usually present, are, weight and pressure in the stomach, appetite either wanting or voracious, acid eructations, pain in the hypochondria, nausea, small contracted pulse, chilliness, palpitation, cold extremities, pale face, constriction about the chest, and obtuseness of the senses. The quantity of blood thrown up is generally considerable, almost always dark.

sometimes in clots, occasionally fluid. Relief is felt after the blood is thrown up. The longer it has lain in the stomach, the slower the effusion, and the darker its appearance.

Causes.—Impeded circulation of the blood in the abdominal viscera, from visceral indurations; suppressed menstruation, particularly in females at the age of puberty. Suppressed hemorrhoidal discharges; habitual constipation; pregnancy; mechanical injuries or erosion of the mucous membrane of the stomach.

Treatment.—Place the feet in hot water, and when removed from the latter, apply sinapisms to them and over the stomach; the patient must keep quiet. Give half a drachm of salt dissolved in cold water, or fifteen drops of oil of crigeron every half hour until the bleeding is arrested. I have arrested hematemesis by directing the patient to swallow small pieces of ice until the bleeding and vomiting ceased.

The bowels should next be moved with castor oil and turpentine. Hepatic torpor, or any other derangement may be subsequently treated; as the nature of the case demands.

Article XII.

HÆMATURIA.—HEMORRHAGE FROM THE URINARY ORGANS.

Symptoms.—The hemorrhage may proceed from the urethra, bladder, ureters or the kidneys. When from the *urethra*, the blood is unmixed with urine, and voided in drops. When from the *bladder*, there is dull pain in the region of this viscus, attended with painful erections and burning in the glans penis; the blood is not intimately mixed with the urine, but suspended in it, usually in small flakes. When from the *kidneys*, the blood is intimately mixed with the urine, and is attended with pain and heat in the loins.

Causes.—Fungoid disease of the prostate is a very frequent cause of hematuria; hence its much greater frequency in males than females. Mechanical irritations, suppression of the menses, and dentition, often gives rise to it.

Treatment.—This must depend upon the seat and cause of the affection. If the bleeding is from the kidneys, and the patient be strong and the pulse full, place him in a cold water pack. On the contrary, when the patient is debilitated, as in typhus or scurvy, the urine is alkaline, and the mineral acids should be given.

In ordinary cases when neither excitement or depression is present in a marked degree, small doses of copaiva and turpentine, or the *tinct. ferri chlorid.*, (the latter is the best) are to be administered. Avoid all stimulants, and absolute rest must be required.

If painful erections are present, cold applications must be continually applied to the parts, until perfect relief is gained.

Article XIII.

DROPSY.—ITS CAUSES.

Whenever a large venous trunk is compressed or obliterated, so that the blood no longer circulates through it, whilst at the same time the collateral vessels can relieve but imperfectly the principal veins thus obstructed, an effusion of serum takes place. But when the obstruction exists not merely in the veins of a limb, if it occur in a vessel into which the blood of a much greater number of parts empties itself, then the dropsy necessarily becomes more considerable. Certain diseases of the liver become a cause of ascites, by obliterating the vena portæ, causing serous collections in the peritoneum. If the heart is diseased and obstructs the free return of venous blood from the whole system, general dropsy is the result. Experience substantiates this theory; all practitioners know that dropsy is one of the most common symptoms of organic affections of the heart.

Another cause of dropsy is *cold*, applied in such a manner as to check the secretion of the skin. It gives rise to general anasarca, effusions into the pleura, pericardium peritoneum, &c.; and from the attendant constitutional symptoms, these

cases are called *inflammatory dropsy*. *Scarlatina*, and other malignant diseases, frequently induce dropsy. *Granular degeneration of the kidneys*, first pointed out by Dr. Bright, is another cause of dropsy. *Debility*, or exhaustion from loss of blood, &c., is not an uncommon source of dropsy. *Tumors* pressing on large venous trunks, obstructing the flow of venous blood, *glandular enlargements*, as hypertrophy of the liver, &c., are frequent causes of dropsy.

The presence of *albumen in the urine* depends on the presence of *blood*, or the *serum of blood*. If serum only be present, the albumen may be detected by boiling a portion of urine, and adding nitric acid; if the entire blood be present the red particles may be detected by the microscope, and will render the urine *smoky* or dusky in color.

Article XIV.

NEPHRITIC DROPSY.—DROPSY FROM BRIGHT'S KIDNEY.

* This state of the kidney is not one of inflammation, but is a slow degeneration of structure. It commences by an abnormal deposit of fat in the epithelial cells lining the uriniferous tubes, and may very properly be termed the *fatty kidney*. The disease is slow and insidious in its approach, and may exist a great length of time before the patient is aware of its presence.

The fat blocks up the uriniferous tubes, which become dilated, so as to press upon the portal plexus of veins which surround them. The Malpighian capillaries being prevented from discharging their contents into the compressed veins, become distended with blood, and either allow serum to exude from their walls, or else burst and admit the escape of red particles, and fibrin.

General symptoms.—In the *first stage* the patient is weak and dyspeptic; the blood loses its red particles to a great degree; if the urine be examined it will be found to contain particles of epithelium loaded with fat.

In the *second stage* the skin is dry and hard, drowsiness, nausea, retching, and palpitation of the heart; frequent desire to micturate in the night. In this stage the urine is *albuminous*, sometimes containing red particles of blood, and little *fibrinous shreds*. Its specific gravity is generally very low.

In the *third stage*, debility increases, anasarca, with, perhaps, ascites, makes its appearance, the secretion of urine becomes less, urea and other excrementitious matters accumulate in the blood, drowsiness and coma, indicating effusion into the head, and finally death. The urine in this stage is very variable; sometimes scanty, at others abundant, and before death the albumen may be entirely gone.

Causes.—Frequent exposure to cold, intemperance, privation of air and light, neglect of proper exercise, &c., are the most frequent causes. This fatty disease of the kidney is apt to induce acute inflammation of the serous membranes, disease of the heart, and indigestion.

Treatment.—When it assumes an acute character, there is nothing more effectual in relieving local irritation than *cupping* over the seat of the disease. All the emunctories should be kept open, and the strength supported as much as possible. Frequent bathing and frictions will be useful in promoting an active condition of the skin; the bowels should be kept open with saline purgatives; and the kidneys gently urged by mild saline diuretics. In changing the condition of the blood, which is always deficient in its red globules, muriated tincture of iron, will be of inestimable service. If the symptoms indicate marked periodicity, antiperiodics will be indispensable.

The *diet* must be plain, unirritating, but nutritious and easy of digestion; especially all articles containing fat should be avoided.

Article XV.

HYDROTHORAX.—DROPSY OF THE CHEST.

This consists in an effusion of serum into the pleural cavities. The *idiopathic* form is very rare.

Symptoms.—The patient feels an oppression and difficulty of breathing; generally lies on the affected side. When the fluid occupies both cavities, respiration is still more difficult and short. The side which contains the fluid becomes full and round; the intercostal spaces widen; the integuments become œdematous, and sometimes also the arm of the affected side. In severe cases, there is often pain and tenderness over the seat of the effusion. In *symptomatic* hydrothorax, in addition to the common symptoms of pleuritic effusion, there will be those of the organic disease from which it arises. When the consequence of some lesion of the circulatory apparatus, it does not generally supervene until a few days before a fatal termination of such diseases; and indicates the approach of death.

Physical signs.—Percussion emits a flat sound over the effused portion, like striking upon the thigh; when the patient sits or stands up the fluid gravitates downwards, and the dead sound is then only heard in the lower part of the thorax. Thus change of the place of sound with the change of position, distinguishes this affection from hepatization of the lungs. *Auscultation* detects no respiratory murmur over the region of the effusion; in its place is heard the *bronchial* respiration; and if the effusion is not large ægophony is heard. *Mensuration* determines which cavity contains the effusion, though this is often recognized at sight.

Treatment—A hydrogogue cathartic, as common physic, and cream tartar, equal parts, is proper at the commencement. Indian hemp and podophyllum, one ounce of each, made into a quart of syrup, and one tablespoonful taken eve-

ry hour for six hours, or enough to procure three or four evacuations of the bowels daily, is an excellent remedy to remove the accumulation of water in the chest. It acts upon the liver, kidneys, skin and bowels.

Diuretics are of great importance in this affection, of which *digitalis* combined with bloodroot, is the best. A pill composed of *digitalis* and squills *aa* gr. 20 ; *podophyllin*, gr. 5 ; ext. *taraxacum*, q. s. to form into a mass. Pulverize and mix. Divide into twenty pills, one of which may be given twice a day. This is good as a change from the syrup, and to form a variety in the treatment.

Queen-of-the-meadow, dwarf elder and bitter-root, form an excellent combination, in the form of syrup, in this and all forms of dropsy. It acts upon all the secretions. The condition of the *skin* should receive special attention, in treating all forms of dropsy. It should be bathed with water or whiskey twice a day and followed by brisk frictions.

Iodide of potassa should be given, five grains two or three times a day, to promote absorption of the effused serum, also to accelerate the renal secretions. The *irritating plaster* should be applied nearly all over the affected side as long as it can be borne ; its place may then be supplied with simple cerate until the irritation subsides. Then renew it again, and so on until the disease is subdued.

Paracentesis thoracis, is now seldom resorted to excepting in empyema. The introduction of air upon the diseased pleura, causes the fluid effused from it to become putrid and poisonous.

The diet should be simple and digestible, always having reference to the ability to digest, and the condition of the system.

Article XVI.

ASCITES.—DROPSY OF THE ABDOMEN.

Symptoms.—The idiopathic form is generally of an *acute* or *inflammatory* form; the pulse is hard, thirst increased, urine scanty, skin hot, and resists pressure. Pain and tenderness of the abdomen, with a quick, small and hard pulse, and suppression of all the secretions, are often present, indicating excited action of the peritoneum. As effusion takes place the abdomen becomes fuller and augments rapidly. The abdominal functions become disturbed, and respiration impeded as the fluid accumulates, and the patient is unable to lie down. The ribs and cartilages are elevated, and the abdomen distended. Irritability of the stomach, anxiety, restlessness, want of sleep, quick pulse, sometimes delirium, and ultimately coma and death supervene, if relief is not obtained.

Ascites may be mistaken for tympanitis, ovarian dropsy, and for pregnancy. *Tympanitis* is readily recognized by the clear resonance on percussion, by the absence of fluctuations, and the history of the case. In *ovarian dropsy* the fluctuation is obscure and circumscribed. Pregnancy is distinguished from ascites by the state of the uterus; by the defined form of the uterus when the patient is supine; by the clear complexion—that of dropsical persons being sickly and cachectic; and by the condition of the breasts.

Causes.—Ascites is of quite frequent occurrence, and may arise at any age. It is generally caused by previous disease, particularly diarrhoea or dysentery; organic lesions of the liver and spleen, and any thing which obstructs venous circulation, may cause it. Intermittent and remittent fevers, scarlet fever, and erysipelas, often give rise to it.

Treatment.—The only modification required in treating ascites, from that of hydrothorax, is when complicated with diseases, of the liver and spleen.

When the tongue is red and smooth, with epigastric tenderness, indicating irritation of the stomach and bowels, a pill composed of ext. dandelion, elder and Indian hemp, two parts of the first, to one of the latter, may be made with pulv. liquorice, and one pill may be given every six hours. If the pulse be quick, add one grain of bloodroot or digitalis to each pill.

The irritating plaster must be applied over the region of the liver, or spleen, or both, according as they are affected, and continued until a free discharge occurs, or until there is decided evidence of convalescence.

The anti-bilious physic and cream of tartar, should be given occasionally, if they can be borne, to procure full hydrogogue catharsis. If there is evidence of enlargement of the spleen, give one drachm of common salt three times a day.

The apocynum and podophyllum syrup, with iodide of potassa may be given in cases where there is not much gastric irritation, with torpor of the liver and kidneys.

If there is a pale and bloodless aspect, a decoction of two ounces of dwarf elder bark in one quart of vinegar, to which add an ounce of small iron wire. Let it stand a few days and give two to four drachms three or four times a day. In this preparation we have acetate of iron, combined with a good diuretic.

Paracentesis abdominis, should be omitted, if possible, yet I have sometimes effected cures by the aid of it, which could not have been otherwise attained.

Compression gradually applied, by means of a broad roller around the abdomen, promotes the absorption of the effused fluid. Active diuretics should be employed in ascites.

Bathing and frictions, with a proper diet, as the condition of the patient requires, must be carefully enjoined.

SECTION IV.

DISEASES OF THE SECRETORY SYSTEM.

Article I.

HEPATITIS, OR INFLAMMATION OF THE LIVER.

Symptoms of acute hepatitis.—General febrile excitement ; acute pain in the right hypochondrium, increased on pressure and by taking a deep inspiration ; pain in the shoulder and clavicle of the right side ; sense of uneasiness in the stomach, nausea and vomiting, short, dry cough ; hiccup ; bowels constipated ; pulse frequent and hard ; the urine high-colored ; an *icteric* hue of the albuginea and skin ; the patient commonly lies on the right side. If suppuration takes place, it is indicated by rigors.

Causes.—Those which produce inflammation generally. Long residence in tropical countries ; intemperance ; miasmata ; disease of the heart ; and intestinal inflammation ; are more especial causes.

Morbid appearances.—The inflamed liver becomes brittle and friable ; the granular secretions are large and red, and abscesses are commonly found in different parts of the organ ; sometimes pus is found infiltrated into the substance of the gland.

Treatment.—The thick yellow fur on the tongue indicates a marked derangement of the stomach ; therefore a thorough *emetic* unloads the stomach, equalizes the circulation, and thus relieves the hepatic inflammation and congested vessels of the portal circle, better than any other remedy. The acetous tincture of lobelia and sanguinaria, forms the best emetic in this affection. A warm infusion of boneset and chamomile, greatly facilitates its action, and produces a fine diaphoresis. A *cathartic* compound of one grain of podophyllin and two of leptandrin should follow the emetic, to remove

morbid accumulations which may exist in the bowels. *Cupping* over the hepatic region, *sinapisms* to the back and feet, with hot *fomentations* to the bowels, are proper external measures to employ.

Diaphoretics, such as warm infusion of bloodroot, sumach berries, and bayberry, in equal parts, fulfill an important indication. A free perspiration should be kept up by these means, until the inflammatory symptoms subside.

Some cases are so mild that simple nausea, aperients, diaphoretics and revulsives are sufficient, without active emesis, purgation, or cupping. Opium should not be administered in acute hepatitis; it has a tendency to lock up the secretions of the liver, and aggravate the congested state of its vessels.

The diet should be rice-water, gruel, black tea, bread-water, &c. The convalescence will be slow, and the nourishment may be gradually increased, with mild tonics, as the case will admit. The bowels should be kept open with mild aperients, as leptandrin and extract dandelion.

CHRONIC HEPATITIS

May be the result of the acute form, but more usually results from the slow operations of the same causes that produce acute hepatitis; as the long continued influence of marsh miasmata. Intemperance is a frequent cause.

There is more or less pain and tenderness, or weight and fulness in the right hypochondrium, with sallowness of the skin, emaciation and depression of the spirits. The liver is sometimes increased greatly in bulk, and may be felt low in the abdomen. Occasionally, however, it is shrunken and atrophied.

One form of the disease consists of an inflammatory thickening of Glisson's capsule, which forms a sheath for the portal vessels, and is termed *hob-nailed liver*. This thickening may compress the biliary ducts, causing jaundice; or the portal veins; causing ascites.

Treatment.—The indications are to diminish the congestion

of the portal vessels, to keep up the secretion of the urine, to allay irritation and support the strength. To fulfill these it is plainly requisite to employ *emetics, cathartics, diuretics, diaphoretics and tonics*.

After the stomach and bowels are thoroughly cleansed, a pill, composed of podophyllin 10 grs. leptandrin 20 grs. sanguinarin 10 grs. and ext. tarax., q. s. to form 20 pills, may be given once or twice a day as the bowels require to promote free daily action.

The patient should be thoroughly bathed every night, followed with brisk frictions, until a thorough reaction is secured to the surface. A *cold shower bath* followed by brisk frictions may be employed with advantage where the strength will allow ; and I have seen great benefit in this affection, derived from the use of a *cold water pack*, once a day.

Emetics and cathartics may be repeated, if there exist at any time marked derangement of the stomach and bowels. A decoction of wild cherry bark and staphylea, taken three times a day, will be an excellent tonic and alterative for improving the tone of the stomach and digestive apparatus.

Counter irritation, with irritating plaster over the liver, I have found very beneficial in obstinate cases. If irritation of the bowels and chronic diarrhoea exist, the treatment for the relief of this affection may be the same as recommended under that head.

If *syphilitic affection* exist, and the blood be thus contaminated, use the alterative syrup prepared according to the American Dispensatory.

The diet should be nourishing and easy of digestion ; the patient should enjoy fresh air, gentle day exercise, and observe perfect regularity in all his habits.

Article II.

GRANULAR DEGENERATION OF THE LIVER.

In this disease the liver is usually contracted in size, and becomes filled with granulations of different sizes, projecting beyond the surface; the color is a yellowish brown. The disease is termed *cirrhosis*. Its nature is not well understood. The ultimate cells appear to secrete an abnormal matter. The cells then enlarge and press upon the acini, so as to cause their absorption. The disease often escapes detection. There are usually dyspeptic symptoms present, with some uneasiness in the hypochondriac region, and ultimately dropsical effusion. The intemperate are most liable to it.

The *treatment* should be similar to that of chronic hepatitis.

FATTY DEGENERATION OF THE LIVER.

The liver is enlarged and the cells filled with an oily matter. The surface is of a bright yellow color; when cut, a greasy stain is left upon the knife.

The cause is probably disordered cell-action, fat being produced instead of bile; occurs in phthisis, and in the intemperate.

Treatment.—Invigorate the general system. Iodine, preparations of iron and cod-liver oil are indicated as in phthisis.

Other organic diseases of the liver are *tubercle*, *scirrhus*, *cysts*, *hydatids*, and *melanosis*. All are very obscure.

Article III.

FUNCTIONAL DISORDER OF THE LIVER.

CONGESTION OF THE LIVER.

Symptoms.—Enlargement; sense of oppression; lowness of spirits; loss of appetite; nausea; furred tongue; &c.

It may produce congestion of the whole portal system, frequently ending in diarrhœa, dysentery, enteritis, or cholera morbus. Active congestion depends on the same causes which produce inflammation; the *passive* form depends on obstruction of the portal circulation.

Treatment.—In the active form give an emeto-cathartic of podophyllin and sanguinaria, equal parts, aided by a warm infusion of eupatorium. Hot pediluvia, followed by sinapisms to the feet and over the liver, with hot fomentations to the abdomen.

Continue with the hepatic pill, composed of podophyllin, leptandrin, sanguinaria, and ext. tarax., sufficient to keep the bowels freely open.

In some cases, cupping over the liver may be necessary. Bathe, and use active frictions to the surface, and treat similar as in acute hepatitis. In the passive form, endeavor to remove the cause, and use the hepatic pill, with bathing and friction to the surface.

Diuretics, of which digitalis, combined with sanguinaria, is the best, if there exist valvular disease of the heart. Cold infusion of wild cherry bark, should be drunk daily. The nitro-muriatic acid bath, once a day, is of essential service in treating the passive form of this affection.

It may be excessive, deficient or morbid; inspection of the stools will determine which. If it be excessive, the stools will be copious and of a bilious character; if deficient, small and clay colored; if deranged, black, or intensely green.

Treatment.—Give an emetic, followed with one-eighth of a grain of podophyllin, one-fourth grain of leptandrin, one-fourth grain of sanguinarin, and one grain ext. tarax., every four hours, until the stools appear more natural in color, and consistence; then administer a dose of castor oil and turpentine. Apply sinapisms over the abdomen and to the feet; bathe the surface thoroughly and follow with active frictions.

GALL-STONES.

Gall-stones may be found in any part of the biliary passa-

ges, varying greatly in size, number, and shape. They are composed of the coloring matter of the bile, and of cholesterine.

Symptoms.—Biliary concretions often pass into the duodenum without causing much pain; on other occasions the patient is suddenly seized with severe pain in the right hypochondrium, recurring in paroxysms, increased by motion, and after meals. Nausea, vomiting, distension of the abdomen, diarrhœa, or constipation are also present. The pulse and skin are usually in a normal state.

Treatment.—To relieve agonizing pain and irritation, produced by the passage of biliary calculi into the duodenum, give large draughts of warm water, containing carbonate of soda in solution. The warm bath, or warm anodyne fomentations will also be useful in allaying pain.

I have given nauseating doses of lobelia, with large injections of warm water, containing tincture of lobelia, and witnessed very speedy relief. Sometimes the suffering is so great that resort should be had to the inhalation of ether, to relieve the agony.

When we have reason to believe that the gall-stones have been evacuated, the patient should take a course of Bone's vegetable bitters; and occasionally alkalies; the diet should be light and easy of digestion, and a sojourn at some of the watering-places may be recommended when circumstances will permit.

JAUNDICE.

Symptoms.—The yellow tinge of the skin and eyes is the most prominent sign, caused by the presence of bile in the circulating fluid. It commences in the face, and thence extends over the whole body. The bowels are costive, the feces untinged with bile; urine high-colored, and of a saffron tint; tongue covered with a dirty-yellow fur; pain in the head, and often in the liver; skin dry, and attended with itching; pulse variable.

Causes.—Diseases of the liver; congestion of the portal system; excessive secretion of bile; gastro-duodenitis, &c.

Treatment.—The indication is to restore the natural hepatic secretion. If the liver is irritated, denoted by pain in the side, increased by pressure, apply cups, and give a cathartic of podophyllin and leptandrin, and follow with alterative doses of the same.

If the liver be torpid, give an emetic and physic as before. After which, give the hepatic pill once or twice a day, a dose of Bone's bitters before each meal, and occasionally alkalis. The nitro-muriatic bath, daily, is useful in both cases, and especially in the latter. Alkaline or saline bathing, and brisk frictions to the skin, are proper. In chronic cases a resort to watering-places will prove beneficial.

Article IV.

SPLENITIS; OR INFLAMMATION OF THE SPLEEN.

The *symptoms* which mark the *acute* form, are sharp or dull pain in the left side; aggravated by pressure, coughing, or a deep inspiration, and sometimes, by lying on the affected side. It is usually attended with febrile symptoms, and may terminate in suppuration. The disease may be mistaken for inflammation of the left lobe of the liver.

Causes.—The most common are external violence; miasmatic influences; congestion of the portal system; suppression of habitual discharges, and depressing emotions.

Treatment.—In an active or sthenic case, the same treatment is required as recommended in acute hepatitis. If connected with miasmatic fever, antiperiodics are indicated, with revulsive measures.

CHRONIC SPLENITIS.

This is commonly an original disorder, induced by repeated attacks of malarial fevers. The spleen is sometimes ex-

cessively enlarged, and may be attended with considerable derangement of the general system. The disease may last for a number of years, and is apt to end in dropsy. The splenic enlargement is occasioned by successive congestions of that organ occurring in intermittent fever.

Treatment.—Purging with the anti-bilious physic and cream of tartar, equal parts; and in case the liver is torpid, give the hepatic pill. One drachm of common salt should be taken three times a day, and an issue established over the spleen, with the irritating plaster, and kept up until the affection is subdued.

Daily bathing and frictions of the surface are especially indicated in this affection. If dropsical effusion and anemia exist, *diuretics*, tonic bitters, and chalybeates are also indicated.

The spleen is also liable to similar *organic* diseases with the liver, sometimes very obscure and incurable.

Article V.

NEPHRITIS; OR INFLAMMATION OF THE KIDNEY.

The most frequent seat of this disease is in the pelvis of the kidney; it may occur in the substance, or its lining membrane.

Symptoms.—Deep-seated pain in the renal region, extending to the groin; urine high colored, scanty, and mixed with blood or gravelly matter. If the substance of the kidney be inflamed, the urine is usually clear; if the pelvis is involved, it is turbid. Febrile symptoms, nausea and vomiting, and constipation, are usual attendants. There is numbness of the thigh of the affected side, retraction of the testicle, and the pain is relieved by bending the body forwards; these symptoms, together with the altered character of the urine, distinguish the affection from peritonitis, lumbago and psoas abscess. If both kidneys are affected there may be suppression of urine and comatose symptoms.

The disease rapidly runs to suppuration, indicated by rigors and the appearance of pus in the urine.

In *chronic nephritis*, the pain is dull; the urine more alkaline, and contains an excess of epithelium scales.

Causes.—Influence of cold; mechanical injuries; irritants absorbed into the circulation, as turpentine and cantharides; violent exercise; calculous concretions.

Treatment.—In moderate cases, hot pediluvia, a warm onion poultice over the renal region, and a *cathartic* of podophyllin and leptandrin. aided in two hours after by an enema of warm water containing one drachm of tinct. lobelia, will generally give prompt relief. If there is much nausea apply a *sinapism* over the stomach.

In severe form of the disease, cup with tumblers over the kidneys, and follow with sinapisms and fomentations; the latter may also be applied to the abdomen. Give a *cathartic* as before. There is no disease in which free catharsis is more beneficial.

Free *diaphoretic* and *anodyne* influence is necessary, after the cathartic has operated. The sudorific tincture is the best article you can employ. The *althea officinalis* is another valuable article in this affection. It is a soothing, mucilaginous diuretic, highly useful in an inflammatory state of the kidneys.

If the inflammation be caused by the use of spirits of turpentine, or any other irritating diuretic, the use of it must be suspended and the *althea officinalis* substituted. If this can not be obtained, an infusion of the pith of sassafras, mullein, flax-seed, or any other mucilaginous diuretic may be employed.

When caused by mechanical injury, cups, fomentations and cataplasms, with mucilaginous diuretics and aperients are indicated. If urinary calculi have produced it, the measures already mentioned are equally applicable. Anodynes and diaphoretics are specially required, and the use of diluent and mucilaginous drinks, will soothe the irritation of the urinary mucous membrane.

Bicarbonate of soda should be given where uric acid is in excess, as shown by a brick-dust sediment. Twenty-five grains every six hours, is the proper mode of administration.

In the *chronic* form, where there is debility of the organ, the best remedies are stimulating diuretics, as turpentine, copaiva, buchu, uva ursi, pipsissewa, &c., together with tonics and a good diet.

Article VI.

CYSTITIS, OR INFLAMMATION OF THE BLADDER.

Symptoms.—Severe burning and throbbing pain above the pubes, increased by pressure; constant and ineffectual desire to urinate; pulse full and hard; skin hot and dry; thirst urgent. The pain extends to the penis, scrotum and perineum; sometimes to the abdomen, which is swollen. It may extend to the peritoneum, causing peritonitis.

If suppuration takes place, pus appears in the urine, or if the abscess occurs in the coats of the bladder it may open suddenly. Coagulated fibrin and blood, and epithelial scales are found in the urine; towards the last it is alkaline.

Causes.—Direct irritation, as the catheter; acrid substances, as cantharides, and turpentine; and the general causes of inflammation, such as colds, mechanical injuries, &c.

Treatment.—Cystitis is rapid in its course and highly dangerous. Cup thoroughly over the pubic region, and perineum, and apply cold constantly to the parts, by means of pounded ice in a bladder, or a sack made of oiled silk; also to the abdomen, if swollen and tender. Administer cold emollient enemata with one drachm of tinct. lobelia in each.

Mild aperients are useful. Free catharsis is injurious. The urine should be drawn off with a catheter, and emollient fluids injected into the bladder.

A cold infusion of althea officinalis, ulmus, pith of sassafras, or flax-seed, may be freely drank.

The cold water pack is a most acceptable application to the patient in the hot and dry state of the skin, existing in cystitis, and also in nephritis.

Chronic cystitis, sometimes called *catarrh of the bladder*, occurs most frequently in the aged, and is usually associated with disease of the prostate. There is a copious flow of mucus from the bladder, variable in consistence, often unattended with pain; large deposits of the phosphates are generally found in the urine. Ulceration takes place in the last stages, attended with discharge of pus and blood.

Treatment.---The stimulating diuretics should be used in cases of this kind, as the balsam of copaiva, turpentine, buchu, uva ursi, &c.

An infusion of *hydrastis canadensis* and *althea officinalis* may be injected into the bladder, daily, through a silver catheter. The general health should be improved by the usual measures, and the bowels kept freely open.

If there exist a rheumatic or gouty condition, counter-irritation may be made over the spine, and the patient should use the wine of colchicum and bloodroot. Cold mucilaginous drinks are also proper.

Article VII.

DIURESIS.

This term is used to signify a morbid increase of urine; it is synonymous with the *diabetis insipidus* of authors.

The urine is pale and of a low specific gravity; the quantity varies according to the season of the year, the amount of fluids drank, the flow of perspiration, &c. *Thirst* is almost always present; Diuresis frequently attends hysteria.

Treatment.---This depends on the cause. Excess of drinking, salines and stimulants, should be avoided. *Diaphoresis* should be promoted by the use of warm baths, flesh brush, and exercise. The common diaphoretic powder may be given

at night; tonics and iron, if attended with enemia; and in debility the alterative diuretics, as copaiva, &c.

The *albuminous diuresis* occurs chiefly in Bright's disease.

An excess of *urea*, caused by defective assimilation, or from too rapid disintegration, gives rise to another form of the disease. It is a dangerous affection, attended with great emaciation. The *test* for urea is nitric acid, or the microscope.

The *treatment* should aim to correct the defective digestion by the use of *tonics*. The daily use of the *nitro muriatic* acid bath is very useful in this disorder. Mild diuretics should be employed, and the usual measures to improve the general health.

Article VIII.

ISCHURIA, OR SUPPRESSION OF URINE.

This is generally but a symptom or effect of some other disease, but is sometimes idiopathic. It may arise either from an irritation of the kidney beyond the points of secretion, or from a torpor or paralysis of the kidney. It must not be confounded with *retention of urine*.

Suppression is sometimes attended with vomiting, drowsiness, coma and convulsions; in these cases it is very dangerous. A vicarious secretion, as from the skin, bowels, &c., is not uncommon.

The *causes* of suppression is not certainly known; it has been attributed to a sort of paralysis of the nerve-centres.

Treatment.—Cup freely over the loins, and apply the irritating plaster. Give diuretics, as cream of tartar, digitalis, squill, unkum, queen of the meadow, &c. The free use of demulcent drinks, such as ulmus. flax-seed, marsh mallows &c., are very beneficial.

The warm bath, followed by warm fomentations over the abdomen, is usually attended with much benefit.

If uric acid be in excess, give carbonate of potassa; if de-

pendent upon a torpid condition, use the stimulating diuretics, as turpentine, &c.

If convulsions occur, use enemata of warm demulcents, tincture of lobelia, and turpentine, the warm bath, &c.

Article IX.

LITHIASIS OR GRAVEL.

This disorder consists in the deposition from the urine, within the body, of an insoluble, sand like matter. In health the urine carries off the results of the waste and disintegration of the tissues in a soluble state; but when these matters are in excess, the urine frequently deposits them after being voided, on cooling. This often occurs after irregularities in diet, without being actually a morbid condition; but when the accumulation is excessive, the deposit may occur in the *kidney*, causing a serious disease.

These deposits may be arranged under three heads:

1. The *uric acid diathesis*, in which uric acid, or the urates, are in excess. The deposit is either sandy, or in the form of small, reddish-yellow granules, termed *lateritious deposits*, and consisting generally of uric acid. The *urates* are not always colored; they are much more soluble than uric acid. The *cause* is an excess of acid in the blood which decomposes the soluble urates, causing a deposition of uric acid in the urine. Its presence may be detected by nitric acid and ammonia or the microscope; the former produces purpurate of ammonia; the latter exhibits groups of peculiar rhomboidal prisms. In this form the urine is scanty and high colored; it occurs in intemperate and gouty people, also in febrile and inflammatory diseases.

2. *Phosphatic acid diathesis*.—The phosphates are held in solution, in healthy urine, by a slight excess of acid. Hence whatever neutralizes this excess of acid, may cause a deposition of the neutral phosphate. They are mostly in the form

of a white powder. They are insoluble in an alkali, but soluble in acetic or muriatic acids. The urine is decidedly alkaline. It most frequently occurs in feeble persons; also in acute affections of the brain. It is also caused by an excess of alkali in the blood.

3. *Oxalic acid diathesis*.—A calculus in the bladder or kidney is usually the first evidence of its existence. Absence of sediment and symptoms of stone, generally excite suspicion of its presence. The microscope exhibits it in transparent octohedral crystals. Little is known of its cause.

The effects of these morbid deposits are either successive attacks of *gravel*, marked by dull aching pain in the back; frequent desire to urinate, preceded by cutting pains in the urethra, neck of the bladder, or ureters. The concretions may become so large as to constitute *calculus*, either of the bladder or kidney.

Treatment.—In the uric acid form, bicarbonate of soda should be given in carbonic acid water, and also, mild diuretics. Diluents should be freely used, and strict attention paid to the diet. Animal food should be taken very sparingly, and alcoholic drinks must be avoided, as also all indigestible articles of food. The daily use of the warm bath, and moderate exercise are highly beneficial.

The *phosphatic* variety should be treated the same as dyspepsia; the alkaline *bicarbonate*, and the mineral acids, given separately—both act by dissolving the phosphates. Diuretics of a stimulating character should be given to alter the character of the mucous surfaces. The common diaphoretic powder may be taken at bedtime; and warm clothing is specially necessary.

The *oxalic* variety requires a general tonic treatment. If the anemic state exists, the chalybeates, and colchicum, are indicated. All articles of food containing oxalic acid must be strictly prohibited.

Article X.

INCONTINENCE OF URINE.

This may depend upon two different conditions ; an excessive irritation of the bladder, it not being able to hold the urine ; or a debility or paralysis of the sphincter muscle. both these conditions may exist at the same time. The most common cases of incontinence are where the sphincter retains considerable power, but yields habitually to a slight impulse, especially in sleep, when the will cannot act. It is sometimes attended with an acrid state of the urine, which is high colored and often loaded with uric acid. Again, in other cases, there appears to be a debility of the kidneys.

Treatment.---Tone must be given to the sphincter of the bladder, and the general system should be invigorated. A course of tonics, with cold saline baths, daily *douche*, followed by brisk frictions to the surface, and warm clothing are indicated. Diuretics of a stimulating character, with astringents should be freely used and pushed so as to produce slight irritation. I have witnessed good effects from the use of small doses of extract of belladonna, in these cases.

In *paralysis* of the bladder, cupping, and the irritating plaster over the spine, may relieve. I have relieved several cases of the kind by the application of electricity, with the other measures named.

SECTION V.

DISEASES OF THE NERVOUS SYSTEM.

Article I.

HYDROCEPHALUS—ACUTE. TUBERCULOUS MENINGITIS.

Hydrocephalus is a name likely to mislead the student, as it signifies merely *dropsy of the brain*; whereas, the disease which it is used to designate, is an acute inflammation of the brain and its membranes, often, but not invariably, ending in serous effusion. The term *tuberculous meningitis* expresses the true pathology of the complaint.

Predisposing causes.—The *epochs of infancy and childhood* may be called predisposing causes, because, at these periods, the great irritability of the nervous system disposes the cerebral circulation to frequent excitement. A *scrofulous diathesis*, is also a powerful predisposing cause; it, however, occurs as a hereditary disease without a scrofulous taint existing. Amongst the other causes are, premature application to study; remittent and exanthematous fevers; syphilitic taint of the parents; application of cold to the head; torpor of the secretory system, &c.; but above all, the tuberculous diathesis.

The *exciting causes* are, external injuries from blows, falls, &c., concussions of the brain, from whirling or tossing the child; the suppression of eruptions on the scalp, and behind the ears; the extension of inflammation from the ear; the retrocession of acute eruptions, and suppression of chronic discharges; the extension of irritation to the membranes of the brain, from inflammation of the pharynx, scalp, face, &c.; too copious depletion in exanthematous or other diseases; metastasis of various affections; the too free use of narcotics in young children, &c.

First stage.—The prominent symptoms are headache, vomiting, and constipation, with febrile excitement. These spells may come out at regular intervals, so as to resemble intermittent fever, for which it has been mistaken. The tongue

is furred, but moist; face pale, and alternating with flushes; the stomach is exceedingly irritable, vomiting being frequently produced on the child changing its position; and the urine is scanty and thick. The temperature of the head is much increased; the eyes extremely sensitive to light; the pupils are contracted; the brows are knit; there is an inability to sit up, and a whining or moaning noise when the child is lying down. The sleep is short and disturbed; the patient rolls its head on the pillow, or often awakens with a scream, or crying, and raises its hands to its head. Sometimes the attack begins by convulsions.

Second stage.—The sensibility is now remarkably impaired; the drowsiness increases in degree, the pupils are dilated, and there is strabismus, and imperfect or double vision; the eyes are dull, heavy, vacant, or staring; the eyelids drooping or half-closed. The pulse, from being frequent, now becomes slow, and sometimes even more so than natural, when the patient is in the horizontal position; but if he attempts to sit up, it immediately acquires its former rapidity. Slight convulsions show themselves in momentary attacks in the eyes, mouth, or upper extremities, which are tremulous. The hands either are raised to the head, or the child picks its nose or mouth. The stupor is occasionally interrupted by loud and shrill screams from the child; and partial contractions of some of the limbs begin to manifest themselves.

Third stage.—The pulse is quick, thready and weak; there are partial or general convulsions; and paralysis of one side or limb occurs. The pupils become more and more dilated, the eyes suffused, and the cornea dull and filmy. The patient is either comatose or delirious, rolls his head about on the pillow, grinds his teeth and moans or breathes heavily and quickly. The skin becomes cold and covered with perspiration, or the sweating may be partial; the respiration is irregular, or stertorous. The excretions are passed involuntarily, and the patient generally dies in a brief, convulsive fit.

Morbid appearances.—The characteristic peculiarity is the

existence of numerous minute tubercles, of a grayish or yellow color, scattered over the surface of the brain, in the substance of the pia matter; sometimes the tuberculous matter is in large masses. The free surface of the arachnoid exhibits few signs of inflammation. The pia mater is inflamed, being injected, thickened, and infiltrated, and often exhibiting a deposit of a thick, yellowish matter, supposed to be coagulable lymph or pus.

The cerebral substance is congested; the convolutions flattened, and even at times quite effaced; the cortical portion is reddened, and the medullary portion, when cut, appears as if sanded over with red specks. The ventricles usually contain an abnormal quantity of serum, which may amount to several ounces; but other cases do not present this lesion, proving that the effusion is not essential to constitute the disease.

Tubercular deposits are also found in various other parts of the body, in a vast majority of cases.

Treatment.---Free purging with common physic and cream of tartar, equal parts, is the best way to commence the treatment. This purgation should be repeated every third day, and during the intervals an infusion of apocynum cannabinum and mentha viridis, may be given to keep the bowels freely open.

The head and shoulders should be kept slightly elevated, and cold evaporating lotions must be constantly applied to the head. The whole surface should be bathed with alkaline or saline water, three times a day, followed by frictions, to keep the skin in an active condition.

Great excitement or delirium may be mitigated by giving small doses of sanguinaria, or gelseminum. The daily use of the warm bath is often attended with much benefit. A moderate dose of iodide of potassium, three times a day, is productive of much benefit in these cases.

This disease should be treated early, for experience unfortunately shows, that little hope of recovery remains when the disease has become far advanced.

Cerebral exhaustion in children produces many symptoms like hydrocephalus, for which it would be most dangerous to mistake it, as the causes, nature, and treatment are quite opposite. It occurs to children ill fed, or exhausted by depletion; the face is cool; the child very drowsy, and unable to hold its head up; the breathing irregular and sighing. One grand distinctive mark is, that the *fontanelle is sunken*, showing that there is no vascular turgescence in the brain. Beef-tea, small doses of ammonia, good nursing, and warmth, are the remedies.

Chronic hydrocephalus.—This disease seems to depend, not on inflammation of the cerebral membranes, but on increased secretion of the cerebro-spinal fluid, which is commonly connected with some congenital lesion of the brain. Chronic hydrocephalus generally exists at the period of the infant's birth, but it sometimes appears during the first few years of infantile existence. It manifests itself by a gradual enlargement of the cranium, which occasionally attains an enormous size. The accumulation of fluid within the skull, not only distends the bony cavity and impedes its ossification, but separates the bones from each other, leaving spaces at the fontanelles, and in many other places, which are now merely protected by membranous expansions. The cerebral substance is also more or less injured. In some cases, a great portion of the nervous matter seems to have disappeared; while in others it is spread out in thin layers, which embrace the fluid, as it were, in a sac. The gradual augmentation of the head, is the chief sign of chronic hydrocephalus; in addition to this symptom, we find that the infant gradually loses flesh, and becomes dull; manifests signs of suffering in the head; sympathetic vomiting is also frequently observed; and the intellectual faculties and senses gradually become more obtuse. The child is unable to carry the head erect, and the muscles of the face become the seat of convulsive movements. As the disease progresses, the well-known symptoms of compression manifest themselves more and more, and the patient dies either in a state of idiocy, or in convulsions.

Treatment.—There are only two modes of treatment worth mentioning, viz : gradual compression of the head, and puncture. The former method, which was well known to the physicians of the seventeenth and eighteenth centuries, has been recently revived ; while the happy results of puncture, through the anterior fontanelle, sufficiently justify us in having recourse to this operation as a probable means of cure. Compression should be kept up after the operation.

Article II.

ENCEPHALITIS—INFLAMMATION OF THE BRAIN.

Causes.—Long exposure to vertical sun, anxiety of mind, the inordinate use of ardent spirits, cold, fright, external injury, the sudden disappearance of an old discharge, &c., may produce this disease ; it sometimes occurs as consequent on small-pox, or erysipelas of the face and scalp, and fevers, especially those of a typhous character, &c.

Symptoms.—Violent inflammatory fever, hot and dry skin, flushed countenance, suffused eyes, quick and hard pulse, throbbing of the carotids, and delirium. The senses are morbidly acute, there being intolerance of light and sound. The person is extremely restless ; there is jactitation of the limbs, and rigidity of the muscles ; the head is remarkably hot, the pupils contracted, and the excretions and secretions suppressed. Occasionally, the muscles of the face are spasmodically affected, the upper eyelid hangs down, and the commissures of the lips seem to be drawn to one side. The tongue is white, loaded, red at its edges, and the papillæ elevated ; there are nausea, vomiting, and obstinate constipation of the bowels. This last symptom is common in congestion, or inflammatory affections of the brain.

As the disease advances, all these symptoms are reversed ; the morbid acuteness of the sensations changes into blindness and deafness ; the delirium passes into stupor, and gradually into coma. Convulsions and different forms of paralysis ensue ; the countenance is vacant or idiotic ; the eye loses its

lustre ; the pupils become dilated ; and occasionally there is strabismus. The respiration is now irregular, occasionally stertorous, the articulation imperfect, the pulse frequent and small, the limbs spasmodically convulsed or paralytic ; there are retention of urine, and involuntary discharge of the fæces. In the still more advanced stage the countenance becomes pale and sunken, the pulse weak and irregular, the urine passes off involuntarily, the skin becomes cold and clammy, the coma more profound, and death soon closes the scene.

Morbid appearances.—The inflamed part of the brain presents different appearances, according to the time the disease has lasted. When it is only of some days' duration, the white substance, and still more perceptibly, the gray, exhibits a rosy, or slight red color ; and in it we perceive several vascular filaments. The firmness of the affected part is considerably diminished, and when cut into, the surface of the incision presents a number of small red points, which cannot be removed by ablution.* In a more advanced stage of encephalitis, the brain is red, the vascular ejection more strongly marked, and the softening very considerable. Finally, in some cases, the blood becomes so intimately mixed with the cerebral substance, that its color approaches that of the lees of wine, being of a deep dusky red ; there is no actual effusion of blood, except we consider as such some small dots, about the size of a pin's head, which we occasionally find in some particular points ; in such cases, the brain is in a state of extreme *ramollissement*.

Should it happen that the inflammation passes into these stages without causing death, then the part affected begins gradually to lose its softness, and ultimately becomes more dense than in the natural state ; it retains for some time its red color, but finally changes to a dusky yellow.

The third stage of encephalitis is that of suppuration ; the red color gradually disappears, and the blood is replaced by

* The small red spots differ from those of congestion, in which small drops of blood reappe as soon as the first are wiped away.

a sero-purulent fluid, which is infiltrated into the substance of the brain, combines with it, and gives to it, according to the extent of the admixture, a grayish, dull white, or yellowish-green color. Sometimes the pus is found in small isolated spots at other times small distinct cavities form, and occasionally we find several small cavities uniting to form a large one. In some instances, the pus is found enclosed in cysts, in which case the purulent matter assumes the same characters as that found in the cellular membrane of the body. The gray substance is the most usual seat of encephalitis; and the parts most commonly affected are, the corpora striata, optic thalami, the convolutions, pons Varolii, and cerebellum.

Treatment.—Place the feet in a hot mustard-water bath, elevate the head and shoulders, and apply cold constantly to the head. Cup at the nape of the neck and between the shoulders, and apply sinapisms to the thighs, calves of the legs, and feet after they are bathed.

Open the bowels freely with podophyllin and cream of tartar, aided by injections of starch, and tincture of lobelia. During the progress of the disease, enema and brisk cathartics should be occasionally administered, on account of their derivative effect.

Place the patient into a warm bath, and let his head be so arranged, that a stream of cold water may fall from a distance upon it, while brisk frictions are made upon his body and limbs. This will produce a good effect, if skillfully performed, and continued a sufficient length of time.

Ligating the limbs for the purpose of modifying the flow of blood to the brain, may deserve a trial in highly dangerous cases.

I have treated many cases of inflammation of the brain and have never lost one under the above process of management. Great prudence, promptness and skill are requisite in the treatment of this dangerous affection. The indications are to derive the excitement from the brain, and cool and quiet that organ.

Article III.

DELIRIUM TREMENS—MANIA A POTU.

This is variously modified, according to the causes in which it originates, and the habits and constitution of the patient. It may, however, be divided into two species, the one being evidently connected with inflammatory irritation, or with excited vascular action in the meninges of the brain, and associated with great irritability; the other consisting chiefly of this last state, attended by exhausted nervous energy. The former occurs usually after a protracted debauch; the latter from the suspension of the stimulus in more habitual drinkers.

Symptoms.--The phenomena of this disease vary remarkably, from the slightest forms of nervous tremor, with spectral illusions and accelerated pulse, to the most alarming state of vital depression, muscular agitation, and mental alienation. In ordinary cases, it is characterized by constant watchfulness, and tremulous quivering motion in the lips, hands, and muscles, generally, on making any effort. The pulse, which is at first slow, becomes quick; there is a constant disposition to talk, now on one subject, and now on another. In the first variety mentioned, the pulse is full and hard, the skin dry, the delirium furious, the eyes injected, the temperature of the head increased, and the tongue is often dry, and red at its edges. In the second form, which is the most common, the pulse is small, or soft, and ranges between 100 and 120; the face is not flushed, nor the skin hot, but it is covered with a clammy perspiration.

As the disease advances, the mental delusion becomes constant, and is generally of a low or melancholic kind, with continued reference to the patient's ruling passions and occupations, and anxiety respecting them. He is perpetually haunted by frightful creatures, or occupied with the most extravagant ideas, and is continually endeavoring to avoid them. If a favorable change does not now take place, the skin be-

comes more cold and clammy, and exhales a peculiar smell, which is between a vinous and alliaceous odour; the pulse becomes still more frequent, small, weak, and thready, so that it cannot, in some cases, be counted; the general tremor increases; the patient talks incessantly, and with great rapidity; the delirium increases, and the patient either sinks into the calm which sometimes precedes death, or is carried off in a convulsive effort.

Morbid appearances.---The appearances on dissection give no direct information on the nature of this disease. In the true delirium tremens, the *membranes of the brain* evince but little change, the chief lesion consisting of slight opacity of the arachnoid, especially at the base of the brain. The pia mater is more or less injected, and an effusion of serum is occasionally observed in the ventricles. In those cases which have accompanied or directly followed intoxication, the vessels are often much congested, particularly those of the velum interpositum; the arachnoid is thickened, and the serum is more abundant, and occasionally is even sanguineous. The appearances of the *stomach* and *liver* are not necessarily connected with the pathology of this disease.

Treatment.---In the form of this disease which is attended with increased vascular action, cupping below the occiput, or leeches behind the ears, will be required; cold lotions, or cold affusion to the head, when its temperature is increased; sponging the body with tepid water; purgatives, judiciously combined with stimulants; and aperient and antispasmodic enemata. When the affection has been caused by spiritous liquors, we should assiduously watch the subsidence of the inflammatory symptoms, and anticipate the depression which ensues; with this intention, tincture of hops or of lupulin, combined with valerian or assafoetida may be given. Moderate doses of *opium*, or of laudanum, with the view of lessening nervous irritability and inducing sleep, should also be exhibited.

In the treatment of the second variety, or the *true delirium tremens*, we should endeavor to cut short the disease by

giving *opium*, with full doses of *camphor* and *ammonia*, and administering enemata, containing laudanum and assafœtida. Many recommend the accustomed stimulus in moderate quantity and at short intervals; it may, however, cause too violent reaction, unless the head be guarded by having frequent recourse to cold affusion. In some cases, warm spiced negus, or punch, may be allowed. The great object is *to procure sleep*, after which the danger is over. Stimulating liniments applied over the epigastrium are occasionally very efficacious.

When the symptoms of nervous irritation have been allayed, we should direct our attention to the condition of the gastro-hepatic system; in which, frequently, there is derangement of function. By the judicious combination of stimulants and medicines which will act on the liver, such as podophyllin, followed by castor oil and turpentine, we again restore the proper secreting action of this gland, and dissipate any sanguineous injection or infraction of its structure. Having produced a proper action on the alimentary canal, we may again have recourse to opium if any signs of irritation remain.

The use of opium is much abused in this disease, and in many cases it is pushed to a most unjustifiable extent. *It is an important question, In how many cases of delirium tremens does the patient die in a state of narcotism?* It is certain that the use of large and repeated doses of opium promotes the supervention of coma, effusion, and paralysis; and that its effects nearly resemble the phenomena of the last stage of delirium tremens. During the convalescence, mild tonics should be given, the diet should be light and nutritious, and a suitable beverage, in moderate quantities allowed. I have treated many cases after this plan and never lost one.

Article IV.

APOPLEXY.

This affection is characterized by loss of consciousness, feeling, and voluntary motion; or, in other words, by a suspension of the functions of the brain, respiration and circulation being also more or less disturbed.

The suspension of the cerebral functions may be connected with any of the following pathological conditions:—1. Great congestion of the brain, in which the vessels of that organ are gorged, but without extravasation of blood or serum; this is termed "*congestive apoplexy*." 2. Congestion of the vessels of the brain, with extravasation on its surface, forming the "*meningeal apoplexy*" of Serres. 3. Hemorrhage into the substance of the brain, with lesion of its structure. 4. A serous effusion of the external surface, and into the ventricles of the brain, constituting what is defined "*serous apoplexy*;" but this is more frequently the termination of an inflammatory or congestive disorder of the brain, than of that deranged state which constitutes the apoplectic attack. 5. Apoplexy may occasion death without leaving any sign at all in the dead body.

Causes.—Apoplexy is said to be hereditary. It may occur at an early period of life, but in the majority of cases the age is above fifty. Among its causes are—ossification, or aneurism of the arteries of the brain; obstruction, thickening, induration, or obliteration of the canals of the sinuses; diseases of the heart, especially hypertrophy of its left ventricle; diseases of the kidney, particularly the granular degeneration; torpor of the liver, or other excreting glands; diseases of the air-tubes and lungs, especially those attended with violent fits of coughing; suppressed hemorrhages, especially epistaxis and hæmorrhoids; suppression of the menstrual discharge; metastatic gout and rheumatism; suppression of any vicarious discharge; depressed and anxious states of the mind;

excessive use of wine or malt liquors; too great sexual indulgence; frequent indulgence in sleep after a full meal; the use of neckcloths worn too tightly around the neck, are among the predisposing causes of apoplexy. Gastric disease, narcotics, and mephitic gases may also be enumerated. Overloading the stomach and neglecting the bowels, are often enough to cause an attack in the predisposed.

Apoplexy is said to occur chiefly in persons of a full habit of body. Upon this point, M. Rochoux's cases afford important data. Of his sixty-three patients, thirty were of an ordinary habit of body, twenty-three were of a thin, meagre habit, and ten only were large, plethoric and fat.

Symptoms.—Apoplexy is sometimes preceded at considerable intervals by precursory or warning symptoms, such as vertigo, headache, ringing in the ears, loss of memory, a feeling of drowsiness and lethargy, depraved vision, or partial palsy. In some cases, there is a sense of great fullness in the head, the veins of the head and forehead become turgid, the countenance is suffused and occasionally livid, and there are slight attacks of epistaxis. If any individual were to complain of several of these symptoms at any period of life, he might be regarded as on the very brink of some serious affection of the brain; and if the person be in the decline of life, it may safely be said he is in immediate danger of an attack of apoplexy. But it is a serious error to suppose that premonitory symptoms always occur; indeed, if we may trust the experience of M. Rochoux, one of the best authorities on apoplexy, they are by no means common. Of *sixty-three cases* which came under his notice, *nine* only had distinct precursory symptoms.

Symptoms of the attack.— In the *mild* form of apoplexy, the patient, after experiencing some of the premonitory symptoms, is seized with alarming vertigo, leipathymia, or feeling of faintness; nausea and vomiting; disturbance of the senses, particularly of the sense of sight; loss of memory; partial loss of sense, consciousness, speech, and voluntary

motion ; weak, irregular, and sometimes quick pulse, and more or less of sopor.

In the *more active form*, the patient is more or less suddenly seized with profound sopor, the eyes being opened or closed ; the breathing deep, slow, sonorous or stertorous ; and the pulse slow, full, hard or strong, sometimes irregular. In this form of the disease, the above are often the chief symptoms, there being no paralysis ; but frequently the mouth is drawn to one side, the eyes are distorted, and one eyelid immovable, with relaxation, loss of sensation and of motion of a limb, or of one side of the body ; the arm of the non-paralysed side being often closely applied to the chest or to the genital organs. The patient generally lies on the paralysed side, which is relaxed, incapable of motion, and insensible to the application of irritants.

In the *most severe and sudden* forms of attack, the patient is struck down instantly, sometimes froths at the mouth, has a livid countenance, dilated pupils, complete relaxation and immobility of the voluntary muscles and limbs, and unconscious evacuation of the urine and fæces, and dies very shortly afterwards either with or without stertor, with cold, livid extremities, cold perspiration, and sometimes a cadaverous cast of countenance. This form constitutes the *apoplexie foudroyante* of the French, in which there is generally an immense extravasation of blood.

Duration of the symptoms in fatal cases of apoplexy.—According to the common opinion, apoplexy may prove fatal instantly, or in a few minutes. The best modern pathologists deny this, and assert that when death is so sudden the cause is commonly disease of the heart, and never apoplexy. Although, however, it seldom proves instantaneously fatal, it may undoubtedly cause death in much less than an hour. In some cases, on the other hand, patients remain even for months in a comatose, paralytic state.

Of serous apoplexy.—It was once supposed in certain cases not attended with evidence of vascular excitement, that

the symptoms were owing to an *effusion of serum*; hence they were called serous apoplexies; but this distinction is now abandoned.

Diagnosis between serous and sanguineous apoplexy.—The sanguineous was said to be distinguished by flushing of the countenance, and strong pulse, and by occurring in persons in the vigor of life; the serous, on the other hand, was said to attack the aged and infirm, the countenance being pale, and the pulse weak, in such cases. But there are many cases whose symptoms and circumstances come exactly within the description of the *serous apoplexy*, but still after death present the vascular engorgement, &c., of the sanguineous, whilst no serous fluid is effused. Speaking of these distinctions, Dr. Abercrombie observes, "It will be found that many of the cases which terminate by serous effusion, exhibit in the early stages all the symptoms which have been assigned to the sanguineous apoplexy; while many of the cases which are accompanied by paleness of the countenance and feebleness of the pulse will be found to be purely sanguineous.

Morbid appearance.—Effusion of blood within the cranium may take place in the brain or cerebellum; in their crura; in the pons Varolii, and in the medulla oblongata; in the corpus callosum; in the ventricles; on the surface of the brain beneath the pia mater; in the cavity of the arachnoid; between this membrane and the dura mater, which it lines; and between the dura mater and cranium.

It has been found that certain parts of the brain are much more liable to sanguineous effusions than others. It has been shown that out of forty-one cases of effusion, twenty-eight were in the corpora striata and their vicinity.

A summary of the result of 386 cases of apoplexy, from the *Precis d'Anatomie Pathologique* of Andral gives a vast preponderance of cases in which effusion has occurred in the hemispheres of the brain, the corpora striata and the optic thalami.

Treatment.—The principal indications are to equalize the

circulation, prevent further oppression, and gradually promote the absorption of the effused fluid.

Ligate the limbs sufficiently to interrupt the venous circulation, and should be continued until more permanent measures can have time to take effect.

If the stomach be loaded, give an *emetic* of alum. Otherwise emesis is inadmissible. Free *catharsis* is highly important. It removes those elements of the blood most embarrassing to the circulation of that fluid in the small vessels, which are most obstructed in these cases. Podophyllin and leptandrin, equal parts, I prefer, aided by emollient enemata, containing tincture of lobelia, and turpentine. Castor oil and turpentine may be given if the podophyllin does not operate. *Cup* the temples, nape of the neck and between the shoulders. Hot *pediluvia* should be early used, followed by *sinapisms* to the feet, ancles, wrists and spine. The head and shoulders should be slightly elevated; cold must be applied to the head, and if very hot the face may be fanned. Now the ligatures may be removed. The cups, sinapisms, pediluvia, cathartics and enemata, will probably require repetition.

An *issue* should be made between the shoulders, and a warm infusion of apocynum and dwarf elder should be drank as freely as the bowels will bear, to promote absorption of the effused fluid.

The diet should be simple, easy of digestion, and used in small quantities; even during convalescence, the diet should be carefully guarded. The exercise should be moderate at first, afterwards more free, while the patient should be cheerful, and not resume his ordinary occupations too soon.

Prophylactic measures, such as strict regularity and simplicity of habits, are highly important to be observed, for there is great liability to a recurrence, which will be likely to prove fatal.

Article V.

PARALYSIS.

The most characteristic symptom of cerebral hemorrhage is paralysis. Very slight effusion produces this effect, and in general its intensity is in the direct ratio of the extent of the effusion. Paralysis may also arise from diseases of the brain, or its membranes, injuries of the brain or the spinal cord, diseases of the spinal cord or its membranes, pressure on, or injury of, the large nervous plexuses, the action of lead, &c.

Paralysis has been divided into several varieties:—1st, paralysis of the nerves of motion; 2d, paralysis of the nerves of sensation; 3d, *hemiplegia*, which implies the existence of paralysis on one side of the body; 4th, *paraplegia*, which signifies that the lower extremities are paralysed; and 5th, *partial* paralysis, as of the muscles of the mouth, or of an extremity; 6th, *general* paralysis, when the two sides of the body, whether in their entire extent or in some of their parts, are at once deprived of motion.

PARALYSIS FROM CEREBRAL HEMORRHAGE.

This form of paralysis develops itself at the very moment the effusion of blood takes place in ordinary apoplexy; acquires all at once its highest degree of intensity, then remains stationary, or begins to diminish. Sometimes the paralysed part has not previously experienced any disturbance with respect to either sensation or motion; sometimes, on the contrary, the patient has experienced in these parts pricking sensations, numbness, permanent or transient, an unusual feeling of cold, a sense of weight, and a certain degree of debility. These different phenomena may announce two things: either the existence of constant lesion in the same point of the brain where at a later period, the hemorrhage shall take place,—as simple habitual sanguineous congestion; a softening which

is still inconsiderable; or a tumor; or else the more or less frequent return of a more serious congestion, in the part of the brain where the blood is to be effused.

The paralysis following cerebral hemorrhage presents great varieties with respect to its seat, and pathological anatomy is far indeed from being always able to assign the cause of such numerous varieties.

There has not as yet been established any *special* relation between the seat of the effused blood and the paralysis of particular organs. It has been asserted that paralysis of the *superior* extremities depends on the effusion taking place in the *thalami*, or in the cerebral substance situated on a *level* with, and *posterior* to them; and that paralysis of the *inferior* extremities depends on the effusion taking place in the *corpora striata*, or in the cerebral substance situated on a *level* with, or *anterior* to them. It is certainly true that cases occur in which the relation of the effusion and the paralysis as above stated holds good; but again, there are numerous cases which fully demonstrate, that paralysis of the extremities has no necessary connexion with effusion into these portions of the brain.

It has also been asserted that *loss of speech* depends on the effusion occupying the *anterior lobes* of the brain; but this derives still less support from actual experience than the former, for blood may be effused into the anterior lobes of the brain without giving rise to any modifications of speech.

The best established facts regarding the seat of cerebral hemorrhage, and the relation which exists between it and paralysis, are the following—

1. That the paralysis almost always occupies the side of the body opposite to that of the brain or cerebellum in which the effused blood is situated.

2. That the paralysis affects only one side of the body, when the effused blood is confined to one hemisphere of the brain, or one of the lateral lobes of the cerebellum.

3. That the paralysis exists on both sides of the body, when

the hemorrhage has taken place in both hemispheres of the brain, or both lateral lobes of the cerebellum, into the ventricles, the pons Varolii, the medulla oblongata, and on the surface of the brain.

4. That paralysis of both sides of the body may also take place, when the hemorrhage is confined to one hemisphere of the brain, or lateral lobe of the cerebellum; but is so extensive as to produce compression of the opposite hemisphere or lobe.

A most remarkable circumstance, connected with cerebral hemorrhage, has been observed by Andral, viz., hemorrhage of one of the lobes of the cerebellum, like that of one of the hemispheres of the brain, gives rise to paralysis of the opposite side of the body; but if hemorrhage takes place into the *left* lobe of the cerebellum, and *right* hemisphere of the cerebrum, the paralysis is found to exist on that side opposite to the hemisphere of the cerebrum, which is the seat of effusion, the other side remaining unaffected by the effusion into the cerebellum.

When blood is effused into the substance of the brain, its color gradually changes from red to black, and in successive transition to brown, dull green, orange, pale yellow, or yellowish white. When the clot has undergone the latter changes of color, and the fibrine, separated from the other constituents of the blood, has assumed a fibrous or laminated appearance, the blood-vessels are observed to form in it. The fibrine may retain its distinctive characters for some time and then become converted into firm fibrous tissue, which, gradually diminishing in bulk, forms eventually a small cicatrix; or, the organized fibrinous substance may be converted into a loose cellular tissue, filled with a serous fluid (the *apoplectic serous cyst*), and traversed by a considerable number of blood vessels. Should the case, under the circumstances, proceed favorably, the serum of the cyst becomes absorbed, the walls approximate, and a cicatrix is formed. Finally, if a complete cure of the paralysis is effected, the cicatrix, whether formed by the first or last process described, disappears.

Treatment.—This consists at first in the treatment proper for the different varieties of apoplexy; afterwards in the use of derivatives, and finally general and local stimulants. All causes of cerebral excitement, whether physical or moral, should be removed; and the patient restricted in his diet. The bowels should be well acted upon, and the condition of the bladder attended to.

In the first part of the treatment the indication is to promote the absorption of the clot of blood. This is best affected by *cold evaporating lotions* applied to the head, and warm appliances to the feet. The head and shoulders should be slightly elevated, and *cups* should be placed over the nape of the neck, and spine, followed with sinapisms. The bowels must be thoroughly opened, and kept constantly free. The daily use of the *sponge bath*, with warm whiskey, in which is ground mustard and salt, followed by *brisk frictions* with a flesh brush or the hand, has a decidedly beneficial result. An *issue* should be established on the nape of the neck or between the shoulders.

The *local treatment* consists in rubbing the paralyzed parts with stimulating liniments, the application of sinapisms and electricity. One pole of the electric battery should be carried along the spine, and the other along the principal nerves of the affected side, while slight shocks are produced.

The *shower bath* will be an excellent remedy, so soon as the patient is sufficiently recovered to bear it, as also daily exercise in the open air, by riding or walking.

Article VI.

TETANUS—LOCKED-JAW.

This is a spasmodic disease, in which the muscles are in a state of rigid contraction, with intervals of partial relaxation, without coma, or any disturbance of the intellect.

It has received different names, according to the effects of

the spasm; as, *trismus*, when the muscles of the jaws are involved; *opisthotonos*, when the body is curved backward; *emprosthotonos*, when the curvature is forward; and *pleurosthotonos*, when to one side.

Tetanus is also divided into the *idiopathic* and *symptomatic*; when the latter is the effect of wounds, or other external injury, it is named *traumatic tetanus*.

Symptoms, course, &c.—Various premonitory signs of an uncertain character are alluded to, but the first unequivocal symptom is a feeling of uneasiness and stiffness in the back of the neck and jaws, with a pain on attempting to open them; and sometimes a difficulty in swallowing. Afterwards there is pain in the epigastrium, shooting towards the spine, and then of the muscles of the face and trunk, which become more or less permanently rigid and hard. Besides this rigidity, there are paroxysms of spasm, alternating with partial relaxation; these spasms gradually increase in violence and duration, and produce excessive pain; they are brought on by the slightest cause.

The *voluntary* muscles appear to suffer most; but the *involuntary* are also affected towards the close of the disease.

Nearly all the *functions* suffer. Deglutition is more or less difficult; the bowels are constipated; respiration is embarrassed, sometimes so much as to cause death from apnoea. Spasm of the glottis often occurs; the action of the heart is accelerated. There is no fever, though the temperature of the surface is elevated several degrees above the usual point. The mind remains remarkably clear throughout the disease. Death may occur from the first to the fifth day, either from apnoea, arising from spasm of the glottis, or immobility of the respiratory muscles, from pure exhaustion, or possibly from spasm of the heart.

A particular variety of tetanus occurs in new-born children, called *trismus nascentium*; it is especially common in the West Indies among the negroes, and is usually ascribed

to irritation arising from cutting the cord, though doubtless owing to some predisposing cause, as foul air, &c.; it is always fatal.

Nature and cause.—Tetanus is the result of an irritation of the spinal centres, whether originating therein, or reflected thereto from the nervous extremities; the latter is the most usual condition, as when a splinter inserted under a fascia transmits the irritation to the spinal centres, from which the motor force is sent into the various muscles involved in the spasm. *Inflammation* is certainly not the cause; for in true spinal inflammation we have the opposite result, or *paralysis*. Frequently there is no lesion of the nerve-centres discoverable after death; though, in other instances, there are marks of inflammation or congestion in the meninges of the spinal marrow, and also in the nerves proceeding from the wound. There must also, it would appear, be a peculiar predisposition, since comparatively few of those who are exposed to the exciting causes, are attacked with the disease. It is not known in what this predisposition consists; but it is favored by the long-continued prevalence of heat, and hence is much more common in tropical countries. Males are more liable to it than females; and the age most exposed to it is from ten to fifty.

Of the *exciting* causes, may be enumerated wounds and injuries, particularly lacerated and punctured wounds, meningeal inflammation, nux vomica or strychnia; and, of the idiopathic, exposure to cold when the body is heated.

Treatment.—The first object is to relieve the spasm. This may be accomplished by the use of *lobelia inflata* and *spirits of turpentine*, by injection, with warm water, so as to keep up slight nausea, constantly. These are the best antispasmodics in my knowledge for tetanus.

The *traumatic* form is much the most dangerous. All known causes of irritation should be removed. Apply an anodyne and emollient poultice to the wound. Clear the bowels by a stimulating cathartic of castor oil and turpentine.

Make an incision if necessary, for the free discharge of pus, or for the relief of inflammatory swelling and tension ; and if any isolated portion of nerve or tendon happens to be on the stretch, divide it. The part may then be fomented with warm decoction of poppies, and the whole part enveloped in a large soft poultice.

The *resin of the Cannabis Indica*, or indian hemp has been employed with good effects. The dose is gr. iij. every half hour until the symptoms are mitigated.

Lobelia in small doses, sufficient to occasion and keep up a slight nausea, has never failed in my hands to control the spasm, while other appropriate measures, as the nature of each case required, have effected early and complete cures.

Nutriments are necessary in all cases to keep up the strength of the patient. Beef-tea, wine, &c. More die for want of nutriment than medicine. This may be given by injections when the patient cannot swallow.

The patient should be protected from all disturbance or irritation, since in this excitable condition, the smallest impression to the organs of sense is apt to excite a severe degree of spasm. He should be kept quiet, secluded from the bright light ; and the administration of remedies should be managed so as to cause as little annoyance as possible, and the patient should be cautioned against speaking, moving, or swallowing, oftener than he is obliged to.

Chronic tetanus is seldom fatal. The chief remedies are aperients, tonics, lobelia, and the shower bath.

Trismus infantum, or locked-jaw of infants, is characterized by spasmodic difficulty of breathing and swallowing, and general convulsions. Usually attended with diarrhœa, and preceded by fretfulness, startings during sleep, and greediness at the breast.

Treatment of any kind seldom successful. Warm bath, injections of infusion of catnip and lobelia, and clear the bowels with oil and turpentine, are the best remedies.

Article VII.

EPILEPSY.

Causes.—Epilepsy appears to be occasionally hereditary, but it is more frequently an acquired disease. It generally arises from excessive nervous irritation, either induced by sympathetic influences, or by direct causes. As examples of the former, may be enumerated, gastro-intestinal disturbance from indigestible food, worms, &c.; difficult dentition; uterine irritation; excessive sexual intercourse and masturbation; the abuse of spirituous and fermented liquors; the presence of calculi in the kidney, ureter, or bladder, or of gall-stones in the excretory duct of the liver. The direct causes are—injuries of the head or spine; diseases of the cranial bones or of the vertebræ; tumors growing on the bones, or spiculæ of bone protruding into the brain; ossific deposition in the dura mater or its processes; ossification of the arteries of the brain; concussions of the brain or spinal cord; and metastasis of gout or rheumatism to the encephalon. I am convinced that the relative frequency of disease of the spinal cord and its membranes in this affection is underrated; and that much may be done for the patient in many instances by attending to the state of this part of the nervous system. The other causes which have been enumerated are—fright, fits of passion, distress of mind, appalling sights, seeing others in the paroxysm, excessive hemorrhage, immoderate depletion, hypercatharsis, the suppression of eruptions, irritation of remote nerves, and the syphilitic and mercurial poisons. Its causes may be divided into, 1st, the *centric*, consisting of disease, or causes of irritation in the nervous centres; 2d, the *eccentric* or *peripheral*, consisting in causes of irritation in the viscera or external parts.

Symptoms.—Epilepsy is generally a chronic disease, and frequently ends in insanity; it sometimes, however, proves fatal during a paroxysm. It consists in fits of *unconscious-*

ness and convulsions. The epileptic fit is *occasionally preceded by certain warnings*, such as stupor, a sense of coldness, or creeping, or of a gentle breeze (*aura epileptica*) proceeding from a particular part of the body towards the head.

In most cases, the patient utters a cry and suddenly falls senseless; the eyes are opened widely, the pupils are fixed, the face is drawn to one side, and the jaws are firmly closed; after some minutes, the muscles of the neck become rigid, the jugular veins distended, and the face is in a state of livid turgescence; the muscles of the face are now seized with frequent spasmodic contractions; there are convulsive movements of the extremities, particularly the superior; the thorax is fixed and the respiration is exceedingly difficult. The tongue is sometimes thrust with violence out of the mouth, and is occasionally caught between the teeth, and severely bitten; in this case the frothy matter expelled from the mouth is tinged with blood.

To this state, which may last from a few minutes to a quarter, or even half an hour, succeeds a deep sleep, general relaxation of the muscular system, paleness of the countenance, and a gradual return of free respiration; the countenance for some time retains an expression of stupidity; the intellectual and sensorial faculties, however, gradually resume their activity, the patient at the same time experiencing a creeping sensation all over his body. Occasionally it happens that one fit succeeds another, till the patient becomes comatose, and dies; but comparatively few die during a fit, unless the disease has existed for a considerable time. In some cases, the attack is much less violent, and consists merely of a momentary loss of sense, with slight and partial convulsions of the eyes, mouth, upper extremities, or fingers, and may or may not be accompanied by a fall.

The most frequent *complications* of epilepsy are, apoplexy, mania, paralysis, chorea, hysteria, and catalepsy; hence the morbid appearances are infinitely various.

Morbid appearances.—Epilepsy may be connected with

any of the organic lesions which occur in the brain and cranium. When a patient dies in a fit of simple epilepsy, the substance and the membranes of the cerebrum and cerebellum are found gorged with black blood. In complicated cases of epilepsy, especially with mania, the medullary substance of the brain is found indurated, and its vessels enlarged; occasionally, however, with dilatation of its vessels, it is softened and flabby. These structural changes are generally limited in extent. The cortical structure also occasionally presents evidence of chronic inflammation, and is, in some instances, adherent to the membranes. The medulla oblongata and spinal cord present, in many cases, alterations similar to those found in the encephalon.

The *pituitary gland* and *infundibulum* is variously altered in color, size and consistence, in nearly all the cases of epilepsy examined; and the crista galli of the ethmoid, and the clinoid processes of the sphenoid bone, more or less prominent, or otherwise changed in position and shape, in most of them. In the larger proportion of cases, the *pineal gland* was also changed in color, and softened. Caries, thickening, internal exostoses, spiculo, malformations, and malpositions of the bones at the base of the skull, with various changes of the membranes, were met with in the larger proportion of cases. The heart, pericardium, lungs, liver, and kidneys have been found diseased in rare instances.

Treatment.—But little can be done for the patient during the paroxysm, except placing him in the horizontal position, and prevent his being injured by the violence of his muscular exertions. One of the first things to be done is to put something between the teeth, to prevent injury to the tongue, and the dress must be loosened, particularly stays and neck-cloths. *Cold affusion* to the head has been recommended it is not very efficacious, except in those cases complicated either with hysteria or uterine disease. *Antispasmodic* and *purgative enemata* are perhaps the most efficacious means during the fit; if there be not much determination to the head, assafoetida injections and castor oil may be employ-

ed; but when this symptom is present, lobelia and turpentine should be preferred.

After the paroxysm is over, the patient should be kept quiet, the bowels opened as quickly as possible, and light nourishing diet in moderate quantity is to be used; the abuse of stimulants is to be abstained from; and every cause, corporeal as well as mental, which can possibly have the effect of disturbing the balance of the circulation, or exciting the nervous system, is to be avoided. If there be evidence of much disturbance in the cerebral circulation, the treatment must be more active; occasional *cupping* may be had recourse to, together with keeping the head shaved, applying cold lotions, acting briskly on the bowels, and placing an issue on the neck. In this form of the affection, bloodroot should be taken at bedtime, beginning with two or three grains, and increasing the dose every night, until a sensible effect is produced on the skin, stomach and bowels.

When chronic inflammatory action is suspected, the *irritating plaster* should be applied along the spine, and over the nape of the neck, until it produces suppuration. Where this disease arises from an affection of the spinal cord or its membranes, it will necessarily require either vascular depletions or tonics, or both, according to the degree in which plethora, increased action, or deficient power, is inferred to be present. Where incited action exists, cupping, and dry cupping in the course of the spine, and issues a little below the seat of the pain, are the most efficient means. The effects of these means are increased by absolute rest, the antiphlogistic regimen, and active purges. In some cases, associated with deficient power, whilst moderate local depletion, dry cupping, external derivation, &c., are resorted to, *tonics* and *antispasmodics*, such as valerian, castor, sculleap, myrrh, cinchona, camphor, and the preparations of iron, should be prescribed.

This state of disease is often induced by *masturbation*; in which case cold aspersion of the genitals night and morning, sponging the spine with cold salt water or vinegar and water,

and the internal use of the preparations of iron, will prove beneficial. Where epilepsy occurs in a scrofulous habit, the iodide of iron, or the iodide of potassium, may be given. If worms be suspected, turpentine and other anthelmintics must be exhibited. The diseases of the digestive organs, and the other complications of epilepsy, should be treated on general principles.

Some medicines have been much lauded in the treatment of epilepsy; the principal of these are—the nitrate or oxide of silver, the ammonio-sulphate of copper, arsenite of potash, sulphates of iron, zinc, or copper, quinine, extract of nuxvomica, and strychnia. Among the antispasmodics employed are, ether, ammonia, camphor, musk, castor, assafoetida, galbanum, valerian, and serpentaria.

Article VIII.

CHOREA.

This disease is popularly named St. Vitus's dance, *Chorea Sancti Viti*; the French call it the dance of St. Guy; and the Germans, the dance of St. Weit.

Exciting causes.—The most common are, intestinal irritation from worms or morbid accumulations, and fright. It may also be caused by injuries to the nervous system from blows or falls; by suppression of eruptions, or vicarious discharges; by rheumatic metastasis to the membranes of the spinal cord; by violent mental emotions; by excessive venery; by masturbation, &c.

Symptoms.—Generally speaking, convulsive movements, or rather twitches of the fingers and muscles of the face are first observed; after a short time, the convulsive movements become more marked; strange contortions of the features take place; the disease extends to the voluntary muscles of all parts of the body, and frequently those of the lower extremities are so continually excited that the patient appears to be dancing, which makes his gait very unsteady; he is

chiefly affected when he is most desirous to control his actions.

The disease is sometimes confined to one side of the body, or to a single part, as the face, a leg or an arm; the muscles are also affected with a sensation of pricking, creeping, or of numbness. At first there is no constitutional derangement, there being no fever, and all the functions, being properly performed, with the exception of the bowels being torpid; but after the disease has continued some time, the general health becomes impaired, and occasionally the mental faculties suffer. This affection is much more common in the female than the male, the proportion being, according to the best authorities, three of the former to one of the latter. It most frequently appears between the age of seven and fifteen.

The *nature of the disease* is but very little understood; by several writers it is attributed to inflammatory action of some part of the cerebro-spinal axis; most probably it is due to some perverted action of the *cerebellum*.

The *seat* of the disease is quite as obscure as its nature. M. Serres considers the *corpora quadrigemina* to be the seat of chorea, while MM. Bouillaud and Magendie conceive that it is seated in the *cerebellum*, the functions which they ascribe to this organ being those chiefly affected in this disease.

Treatment.—This consists in removing morbid secretions and faecal accumulations; in subduing, when evidently present, excited action of the vessels of the spinal cord or brain; and, finally, in rousing the energy of the nervous system.—*Purgative medicines* have been prescribed with the best effects in this disease; a dose of podophyllin should be given at first, and in a few hours after a brisk cathartic ought to be exhibited. The compound infusions of gentian and senna, with a little sulphate of magnesia, may be given in the morning occasionally. The oil of turpentine also forms an excellent medicine in chorea, and is particularly indicated where the presence of worms is suspected. The diet should be light

and nourishing; every indigestible substance should be carefully avoided. Dr. Wood recommends the use of black-snake root, having frequently found it of itself adequate to the cure of the disease.

If there be evidence of cerebro-spinal irritation, our attention must necessarily be directed to its removal; this is best effected by cupping, and counter-irritation, over the parts particularly implicated. Attention to the mental emotions, warm woollen clothing on the lower extremities, cold affusion on the head or on the spine, or the shower-bath, constitute important parts of the treatment.

A syrup composed of nerve root, scullcap, cramp bark, skunk cabbage and wild cherry bark, equal parts, and given every four hours, usually greatly modifies the nervous irregularities, and produces a permanent benefit. One ounce of each may be made into one quart of syrup, and one table-spoonful be taken as a dose.

Tonics are proper in obstinate cases, such as hydrastin, quinine, iron, &c. I have seen much benefit from the use of Bone's Bitters, with a pill composed of extract of lobelia and cypripedium, one grain each, taken every six hours.

If the disease occur in the female about the age of puberty, a judicious use of emmenagogues will occasionally effect a cure by establishing the catamenia. The *sulphur-bath* persevered in, has been known to effect a cure in children suffering from this affection.

Every measure should be used to promote the general health, and render the mind as contented and happy as possible. Special care should be taken not to irritate or oppose the patient in any reasonable indulgence.

Article IX.

HYSTERIA.

This is an apyrexial convulsive disorder, affecting females almost exclusively. The seat of this disease is altogether unknown.

Symptoms.—Hysteria is an intermittent, irregular, chronic disease, which comes on by fits, and usually attacks females from the age of puberty to the critical period; it very commonly occurs on the suppression or diminution of the menses, particularly in persons of a nervous or irritable temperament. In the slighter forms, the patient, without any assignable cause, bursts into a fit of weeping, which perhaps is soon followed by convulsive laughter, which may last for a few minutes; and before composure takes place, the patient gives several loud sobs; one of these fits may succeed the other, till the patient falls asleep.

The fit sometimes begins with a yawning, numbness of the extremities, involuntary laughing and crying, alternations of pallor and redness of the face, and a sensation as if a ball (*globus hystericus*) commencing at the hypogastrium, ascended through the abdomen and thorax to settle at the throat, where it produces a violent sense of constriction, and of impending suffocation.

In more severe instances of hysteria, there are convulsive movements, particularly of the hands, face, jaws, and muscles of respiration; they are of a clonic character. The pupils are dilated; and occasionally the paroxysm has a close resemblance to epilepsy, only that the insensibility is rarely complete. In this disease there is a remarkable deficiency of the organic matters in the urine, and this fluid is very watery. Hysteria does not tend essentially to increase, nor does it determine as a consequence, mania or idiocy. Hysteria is very apt to be confounded with epilepsy.

Treatment.—In those causes where there is any reason to

suspect any congestion or inflammation of the uterus, or of any portion of the brain, then blood should be drawn by cupping from the back of the head or loins. During a paroxysm, the stays and all tight strings should be loosened, and the free admission of air procured; the face is to be sprinkled with cold water, volatile salts are to be held to the nostrils, and, if the patient can swallow, a drachm of the aromatic spirit of ammonia, or the same quantity of ammoniated tincture of valerian, may be given in a wineglass-full of water.

In the severer forms of the disease, the application of cold to the body is often a most effectual means of putting a stop to the paroxysm. The bowels should be kept regularly open, and the best purge in these cases is castor oil with oil of turpentine, given every, or every second morning, according to circumstances; enemata containing assafoetida and lobelia, are also useful. If the convulsion is very protracted, it will be proper to examine the spine, and, if found tender, to apply cups to it. The nauseating effects of blood-root are also very beneficial in this condition. The prevention of the recurrence of the symptoms is to be attempted by keeping up an action of the bowels, and administering tonics, such as the sulphate of quinine, the preparations of iron, &c. Fœtids, such as assafoetida, castor, valerian, &c., are sometimes, but not invariably, useful. The menstrual action, if irregular, must, if possible, be rectified by appropriate means. The diet should be light, and every attention paid to the improvement of the general health.

Hysterical tetanus is characterized by common tetanic spasms, but may be detected by the hysterical state of the mind, and by forcing the patient to exert her volition. The best remedies are warm aloetic purgatives, turpentine and lobelia enemata, and nerve syrup, with antispasmodics.

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